

DOCUMENT RESUME

ED 405 631

EA 025 008

AUTHOR Pink, William T., Ed.; And Others
TITLE Restructuring To Promote Learning in America's Schools. Selected Readings, Volume II for Video Conferences 5-9.
INSTITUTION North Central Regional Educational Lab., Elmhurst, IL.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE 90
CONTRACT 400-86-0004
NOTE 364p.; For the guidebooks to Video Conferences 5-9, see ED 327 933-937.
AVAILABLE FROM Zaner-Bloser, Inc., 1459 King Avenue, P.O. Box 16764, Columbus, OH 43216.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Collected Works - General (020)
EDRS PRICE MF01/PC15 Plus Postage.
DESCRIPTORS *Educational Change; *Educational Environment; Elementary Secondary Education; *High Risk Students; *Learning Processes; *School Restructuring; *Staff Development
IDENTIFIERS *Learning Communities

ABSTRACT

This second volume of selected readings is designed to accompany Video Conferences 5-9 in the series "Restructuring to Promote Learning in America's Schools." The readings in this volume explore several key issues in school restructuring. Four sections include: (1) Schools as Learning Communities; (2) Many Roads to Fundamental Reform: Getting Started and Continuing the Journey; (3) The Meaning of Staff Development in the 21st Century; and (4) Reconnecting Students at Risk to the Learning Process. Essays include: (1) "Building Community" (John W. Gardner); (2) "Parent-Community Involvement: Collaboration by Another Name" (Betty Harris James); (3) "Blueprint for Schools and Community Development" (The Heartland Center for Leadership Development); (4) "The School of the Future Will Be a Community School" (C. William Brubaker); (5) "Parent Involvement: State Education Agencies Should Lead the Way" (Joyce L. Epstein); (6) "The Next Educational Reform: Family Support Systems" (William H. Denton); (7) "Bottom-Line Education: A Business-Run School in Chicago Seeks to Improve Learning Without a Big Rise in Costs" (Ellen Graham); (8) "Restructuring Schools to Meet the Needs of Disadvantaged Students" (Gary Natriello; Edward L. McDill; Aaron M. Pallas); (9) "Background Paper Professional Practice Schools" (Marsha Levine, Tamar Gendler); (10) "Toward Redefining Models of Curriculum and Instruction for Students at Risk" (Beau Fly Jones); (11) "Toward a New Mainstream of Instruction for American Schools" (Eric J. Cooper); (12) "The Search for Meaningful Reform: A Third-Wave Educational System" (Charles M. Reigeluth); (13) "Lessons From the Trenches" (Thomas Toch, Matthew Cooper); (14) "Educational Reform and Federal Policy: Supporting Perestroika and Professionalism in the Public Schools" (Linda Darling-Hammond); (15) "Knowledge and Teaching: Foundations of the New Reform" (Lee S. Shulman); (16) "Five Models of Staff Development for Teachers" (Dennis Sparks, Susan Loucks-Horsley); (17) "Effective Staff Development for Urban School Improvement" (William T. Pink); (18) "Educating Poor Minority Children" (James P. Comer); (19) "Funds of Knowledge: Historical Constitution, Social Distribution, and Transmission" (James B. Greenberg); (20) "What No Bedtime Story Means: Narrative Skills at Home and School" (Shirley Brice Heath); (21) "Research Into Practice: Teaching Mathematics and Thinking" (Edward A. Silver, Margaret S. Smith); and (22) "QUASAR Quantitative Understanding Amplifying Student Achievement and Reasoning" (Edward A. Silver). (MLH)

RESTRUCTURING TO PROMOTE LEARNING IN AMERICA'S SCHOOLS

SELECTED READINGS

Volume II For Video Conferences 5-9

Prepared by the

**North Central Regional
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This publication is based on work sponsored wholly or in part by the Office of Educational Research and Improvement, Department of Education, under Contract Number 400-86-0004. The content of this publication does not necessarily reflect the views of OERI, the Department of Education, or any other agency of the U.S. Government.

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RESTRUCTURING TO PROMOTE LEARNING IN AMERICA'S SCHOOLS

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1459 King Avenue
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Columbus, Ohio 43216**

Acknowledgements

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INTRODUCTION

This second volume of selected readings is designed to accompany Video Conferences 5-9 in the series Restructuring to Promote Learning in America's Schools. This part of the series addresses a number of key issues concerning the kinds of decisions schools must make to conceptualize and successfully mount restructuring. The underlying theme is that a new vision of learning requires us to develop a different learning environment. This new conception of schools is not, however, driven by the search to discover the single best model. Rather, as is suggested throughout this video series, restructured schools must be created via broad-based collaborative action at the local school site. In short, local needs and context must be integrated with knowledge about successful practices as plans for restructuring are developed.

The readings in this volume explore several key issues in school restructuring: the need to broaden our conception of schooling to develop schools as learning communities, as we define new roles for students, teachers, administrators, parents, and community resources; the need to articulate the way to begin and sustain restructuring, as well as the content of restructuring; the need to reconfigure the role that staff development can play in both initiating and supporting

We wish to acknowledge the work of Jan Bakker, Julia Hall, Marianne Kroeger, Cheryl May, and Lenaya Raack in preparing and editing this volume.

restructuring activities; and the need to rethink the ways that the learning setting can work effectively for at-risk students.

We do not want to suggest that these readings are sufficient for successful school restructuring. They have been selected because they complement the video series and raise significant questions that ought to be resolved at the local level. To date, there is no concensus concerning the best way(s) to restructure schools. Thus, as you read these articles you should be thinking about (1) how they connect to your own setting and (2) in a broader context, how they might help in framing your own thinking about restructuring in new and productive ways.

William T. Pink
Donna Sederburg Ogle
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July 1990

VIDEO CONFERENCE 5
SCHOOLS AS LEARNING COMMUNITIES

One of the major themes of this video series is that schools must change in fundamental ways to facilitate a different learning environment. Such a restructuring must include different roles for students, teachers, administrators, and parents. It also demands that schools look outward to embrace the varied and rich skills to be found in their wider community.

Each of the seven readings in this section explores ideas about rethinking roles and structures that would result in schools becoming more fully integrated with the communities they serve. As you read these pieces, you should ask to what degree these ideas could be useful to the restructuring of your own classroom, school, and district.

John W. Gardner (1989) discusses how the meaning of community has changed in recent years. He notes that as the world has changed so, too, have the demands on our concept of the "traditional" community. In defining a new conception of community, Gardner discusses eight characteristics that need attention. He notes that fragmentation (of both the problem definition and solution) is a major problem and argues that several sectors (e.g., the city, the workplace, the school, and the church) need to work together as a broad-based and caring community to solve problems that are highly interactive.

Betty Harris James (1989) reports on two efforts to mount collaborative projects "designed to involve parent-community

groups in educational improvement projects." This report is informative because it underscores the importance of context as new roles and expectations are negotiated. James reports on the concerns urban parents have about their schools and the types of collaborative community structures that would best address these concerns. This analysis suggests an agenda for schools in developing themselves as learning communities (e.g., "stages of increasingly complex levels of interaction . . . which move toward the final product--a comprehensive, collaborative model involving parents and community members and relevant provider agencies").

The Heartland Center for Leadership Development (1988) piece develops the concept of the interdependability of the school and its community for rural schools. It emphasizes that the idea of community development (economically, politically, psychologically, etc.) can be employed to "improve the current education of their high school students." Twenty characteristics of productive and healthy rural communities are noted. Included are several activities that would help the restructuring effort in all schools (e.g., emphasis on quality in business and community life, participatory approach to community decision-making, acceptance of women in leadership roles, and strong belief in and support for education)

C. William Brubaker (1988) provides some insight into how the recent concept of the school as a focus for broad-based community activity can take advantage of rehabbing and new building. Actualizing "learning as a lifelong process," argues

Brubaker, requires us to bring education, recreation, cultural enrichment, and human services together under one roof.

Joyce L. Epstein (1987) reports on a study of parental involvement in Maryland schools. She reports that teacher leadership in involving parents in school activities is a critical factor for success--more important than parental education. After noting five different types of parent involvement "that contribute to a comprehensive program of school and family partnerships," Epstein discusses ten ways that states can facilitate such collaborative action (e.g., write a policy that outlines and discusses that state's commitment to parental involvement; support master teacher, mentor or lead teachers or other career ladder programs to build a cadre of specialists in the use of parent involvement; and support the development of programs for special populations of parents). These activities suggest an agenda for schools in mobilizing parent involvement activities. Epstein concludes by noting that (a) parent involvement must be the concern of several groups, not just parents, (b) a structure must be created to facilitate such programs, and (c) groups need to work cooperatively over a sustained period of time to make the programs more than symbolic.

William H. Denton (1989) elaborates on several themes mentioned earlier in building a case for a holistic approach to youth issues such as dropping out of school and illiteracy. In arguing that we must view learning as a continuum from youth to adult education, and that problems of individual development cannot be separated from "the family, and the larger network of

socializing influences," Denton suggests that the real issue "becomes one of empowering local mediating structures once again for their traditional role." He makes three observations: we must work to enable the local community systems, especially the family, to perform their assigned functions; we must work to strengthen community mechanisms for coordination and integration; and we must devolve power down to the units making up these interconnecting systems.

Finally, the newspaper article by Ellen Graham (1990) describes the beginnings of the Corporate/Community School in Chicago, Illinois. The private, year-round, tuition-free school, housed in a predominantly black neighborhood, provides an experimental setting for thinking about different roles for students, teachers, administrators, parents, and the corporate community.

These readings raise a number of interesting questions:

- . In what ways do the ideas about community presented in these readings connect to my own setting?
- . How seriously have these ideas about community been explored in my school and district?
- . What new roles (for students, teachers, administrators, and parents) and structures to support these roles are desirable in my school and district?
- . In what ways can a dialogue about the school as a learning community be initiated and sustained in my school and district?

Building Community

by John W. Gardner



We know that where community exists it confers upon its members identity, a sense of belonging, and a measure of security. It is in communities that the attributes that distinguish humans as social creatures are nourished. Communities are the ground-level generators and preservers of values and ethical systems. The ideals of justice and compassion are nurtured in communities. The natural setting for religion is the religious community.

The breakdown of communities has had a serious disintegrating effect on the behavior of individuals. We have all observed the consequences in personal and social breakdown. The casualties stream through the juvenile courts and psychiatrists' offices and drug abuse clinics. There has been much talk of the breakup of the nuclear family as a support structure for children. We must remind ourselves that in an earlier era support came not only from the nuclear family but from extended family and community. The child moved in an environment filled with people concerned for his future — not always concerned in a kindly spirit, but concerned. A great many children today live in environments where virtually no one pays attention unless they break the law.

We have seen in recent years a troubling number of very successful, highly rewarded individuals in business and government engage in behavior that brought them crashing down. One explanation is that they betrayed their values for some gratification they couldn't resist (e.g., money, power, sensual pleasure). Another possible explanation is that they had no values to betray, that they were



among the many contemporary individuals who had never had roots in a framework of values, or had torn loose from their roots, torn loose from their moorings. Shame, after all, is a social emotion. Individuals who experience it feel that they have transgressed some group standard of propriety or right conduct. But if they have no sense of membership in any group, the basis for feeling ashamed is undermined. And there is an African proverb, "Where there is no shame, there is no honor."

In World War II studies of soldiers in combat, the most common explanation given for acts of extraordinary courage was "I didn't want to let my buddies down." Reflect on the number of individuals in this transient, pluralistic society who have no allegiance to any group, the members of which they would not want to let down.

We know a great deal about the circumstances of contemporary life that erode our sense of community. And we are beginning to understand how our passion for individualism led us away from community. But so far there has been very

little considered advice to help us on the road back to community. Many of us are persuaded of the need to travel that road and have no doubt that it exists; but finding it will require that we be clear as to what we're seeking. We can never bring the traditional community back, and if we could it would prove to be hopelessly anachronistic.

The Characteristics of Community

The traditional community was homogeneous. We live with heterogeneity and must design communities to handle it.

The traditional community experienced relatively little change from one decade to the next and resented the little that it did experience. We must design communities that can survive change and, when necessary, seek change.

The traditional community commonly demanded a high degree of conformity. Because of the nature of the world we live in, our communities must be pluralistic and adaptive, fostering individual freedom and responsibility within a framework of group obligation.

The traditional community was often

unwelcoming to strangers and all too ready to reduce its communication with the external world. Hard realities require that present-day communities be in continuous and effective touch with the outside world, and our system of values requires that they be inclusive.

The traditional community could boast generations of history and continuity. Only a few communities today can hope to

If they have no sense of membership in any group, the basis for feeling ashamed is undermined.

enjoy any such heritage. They must continuously rebuild their shared culture, must consciously foster the norms and values that will ensure their continued integrity.

In short, much as we cherish the thought of the traditional community, we shall have to build anew, seeking to reincarnate some of the cherished values of the old communities in forms appropriate to contemporary social organization.

Most Americans who endorse the idea of community today have in mind communities that strive to exemplify the best of contemporary values, communities that are inclusive, that balance individual freedom and group obligation, that foster the release of human possibilities, that invite participation and the sharing of leadership tasks.

A glance at the contemporary scene reveals diverse kinds of community. Most familiar to us are territorially bounded communities such as towns, suburbs, neighborhoods, and so on, but we must

look also at other kinds of community.

Some congregations create what I regard as genuine communities though their members may be scattered over a large metropolitan area. The workplace may constitute a community even though it draws its members from a wide area. Some of the smaller professional and academic fields and some religious orders are communities even though they may be very widely dispersed geographically. Some public schools are communities in the best sense of the word while others are simply geographical locations where young people spend a certain number of allotted hours performing required activities. The same appears to be true of congregations. Some are authentic communities, others are simply locations where unconnected people come together on Sunday. The same contrasts may be found in the workplace.

Wholeness and Belonging

In seeking to explain such differences one is driven to think analytically about the ingredients or characteristics of community. I shall list eight ingredients. The reader is invited to add to the list or define the ingredients in other ways. The important thing at this stage is to get past the generalized idea of community to an understanding of what conditions or circumstances make it real. In order to focus my study I chose four areas for special attention — the city, the workplace, the school, and the church. I shall draw examples from all four, trying not to confuse the reader in the process.

Wholeness incorporating diversity. A community is obviously less of a commu-

nity if fragmentation or divisiveness exists — and if the rifts are deep it is no community at all. Schools in which faculty and students carry on a kind of trench warfare, congregations divided into cliques, cities in which people of diverse ethnic origins form mutually hostile groups — these are obviously not healthy communities.

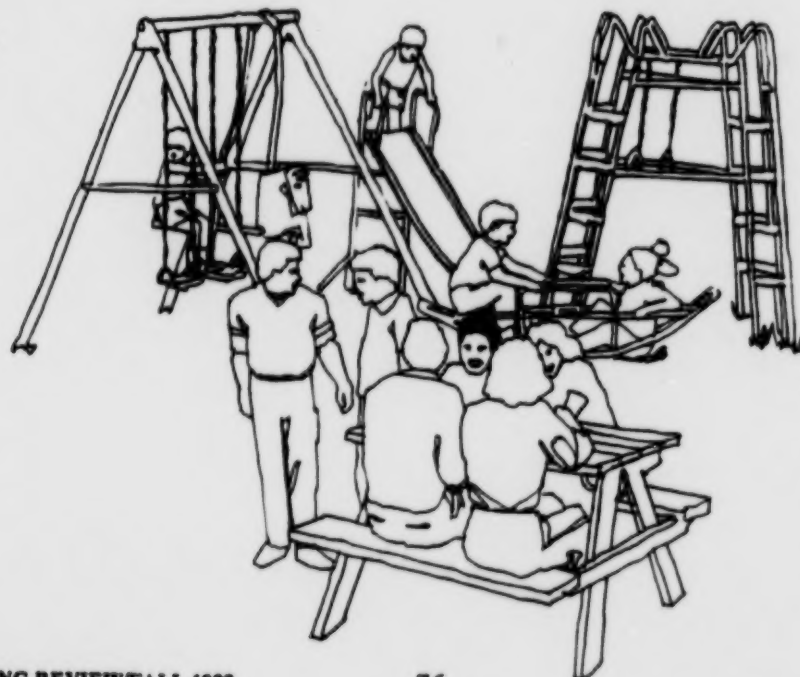
We expect and want diversity, and there will be dissension in the best of communities. But in vital communities, cooperation, compromise, and consensus-building will be widely shared pursuits. In the best circumstances such communities will have instruments and processes for conflict resolution. Some cities have created special boards to deal with disputes between groups of citizens. Others have interracial councils and provisions for citizens from one segment of the community to know and work with citizens from

other segments. Healthy communities respect diversity but seek common ground and a larger unity.

I have long advocated that in cities, leaders from all segments of the community come together in *networks of responsibility* to set goals and to tackle the city's most pressing problems. The community has a better chance of achieving wholeness if local government collaborates closely and continuously with private sector institutions, profit and nonprofit.

The skills necessary to the resolution of group conflict should be taught in both high school and college. All men and women in positions of leadership, government, or private sector, should be schooled in dispute resolution and all of the antipolarization arts.

A shared culture. The possibility of wholeness is considerably enhanced if the community has a shared culture; i.e.,



shared norms and values. If the community is lucky (and fewer and fewer are), it will have a shared history and tradition. It will have symbols of group identity, its "story," its legends, and heroes. Social cohesion will be advanced if the group's norms and values are explicit. Values that are never expressed are apt to be taken for granted and not adequately conveyed to young people and newcomers. The well-functioning community provides many opportunities to express values in relevant action. If it believes, for example, that the individual should in some measure serve the community, it will provide many opportunities for young people to engage in such service.

To maintain the sense of belonging and the dedication and commitment so essential to community life, members need inspiring reminders of shared goals and values. A healthy community affirms itself and builds morale and motivation through ceremonies and celebrations that honor the symbols of shared identity and enable members to rededicate themselves. This doesn't mean that they suppress internal criticism or deny their flaws.

One or another form of education about the community, its history, and its purpose is necessary to introduce young people to the shared past and present.

"We" and "They"

Good internal communication. Members of a well-functioning community communicate freely with one another. One of the advantages of the small group is that frequent face-to-face communication is possible. In large systems (cities, corporations) much conscious effort is needed to

keep the channels of communication open among all elements of the system, and to combat the "we-they" barriers that impede the flow.

There must be occasions when members gather; there must be meeting spaces. In cities or neighborhoods there must be organizations willing to serve as meeting grounds.

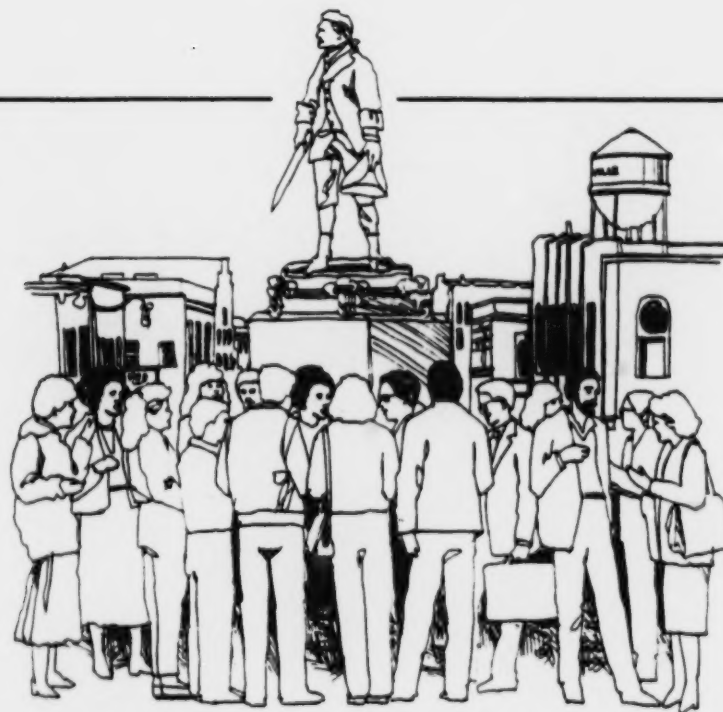
Whatever the type of community, people have to believe that they can have

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their say. Between manager and worker, governing body and citizens, teacher and students, pastor and parishioners, there must be honest and open two-way communication. Each must understand what the other needs and wants.

In cities, much of the communication will be through the media. Civic leaders and institutions must urge the media toward responsible coverage, but it is a mistake to depend entirely on such urging. Leaders should create an information-sharing network among a wide variety of institutions and organizations. Maximum use should be made of institutions that can serve as neutral conveners — e.g., community foundations, community colleges, universities, churches. A community is strengthened if there are occasions (celebrations, retreats, outings, etc.) on which extensive informal interaction is possible.

Caring, trust, and teamwork. A good



community nurtures its members and fosters an atmosphere of trust. They both protect and give a measure of autonomy to the individual. There is a spirit of mutuality and cooperation. Everyone is included.

Such attitudes make it possible to work together on necessary common tasks. Undergirding the teamwork is a widely shared commitment to the common good, an awareness by all that they need one another and must pool their talent, energy, and resources. There is a feeling that when the team wins everybody wins. Tasks that require the sharing of skills and resources foster the habit of collaboration, mutual support, and a willingness to put the good of the team first.

A healthy community deals forthrightly with dissension and "we-they" polarities, accepting diversity and dissent but using all the various mediating, coalition-building, and conflict resolution procedures to

find common ground.

It is necessary to add that a community can be too tightly knit, suppressing dissent and constraining the creativity of its members.

Leadership and Participation

Group maintenance and government. A functioning community has institutional provisions for group maintenance or governing. In a corporation it is the board of directors, management, and the chain of command. In a college it is the trustees, administration, faculty council, and student government. In a town or city it is not only the formal governing mechanisms but the nongovernmental leadership exercised through various nonprofit institutions.

One task is the maintenance of some reasonable measure of order and adherence to respected customs and norms.

Violence, vandalism, crime, and drugs can destroy every vestige of community — as some urban public schools have discovered to their sorrow. Healthy communities ensure a safe environment for their members.

No less important is the reasonably efficient performance of community services. Community leaders may have the highest of civic ideals, but they also have to ensure that the garbage is collected, the streets maintained, the children educated, and so on. Collaboration between public and private sectors is essential to the performance of some of these tasks.

In a swiftly changing environment, communities and organizations must look ahead. The best of them engage in one or another form of strategic planning and priority setting, not through occasional one-shot "futures" reports but on a regular and continuing basis. In cities, governments and the private sector must collaborate on such forward planning.

Participation and the sharing of leadership tasks. The culture of the healthy community encourages individual involvement in the pursuit of shared purposes. Cities can get significant participation from nongovernmental leaders through hearings, advisory boards, and citizen commissions. Strong neighborhood groups are important; and a wide range of nonprofit civic groups and institutions can play a role.

It is not uncommon in our towns and cities today that the groups most involved in the affairs of the community all come from one or two segments of the community. All segments must participate. In a city or an organization, the possibility of

effective participation is increased if everyone is kept informed, and if individuals feel that they have a say. That means the system cannot be autocratically run or excessively centralized. Leaders must devolve initiative and responsibility widely throughout the system. We must never forget that our conception of community involves the participation of ma-

There must be occasions when members gather, there must be meeting spaces. In cities or neighborhoods there must be organizations willing to serve as meeting grounds.

ture and responsible individuals. We don't want "community" bought at the price of the individual's mindless submission to the group. The good community will find a productive balance between individuality and group obligation.

Everyone need not participate actively with respect to any given community. We must guard the *right* to participate while recognizing that some will choose not to do so. Individuals expending enormous energies holding their families together may be thankfully passive members of their church congregation. The individual who is an activist in the workplace community may be a passive member of the neighborhood association.

Links to the Future

Development of young people. In a community of the sort we would applaud, the opportunities for individual growth will be numerous and varied for all mem-



bers. And mature members will ensure that young people grow up with a sense of obligation to the community. Beginning in elementary and high school, boys and girls will learn to take responsibility for the well-being of any group they are in — a seemingly small step but without doubt the first step toward responsible community participation, and for that matter the first step in leadership development. On the playing field, and in group activities in and out of school and college, they will learn teamwork. Through volunteer and intern experiences outside of school they will learn how the adult world works and will have the experience of serving their society. And they will learn that responsible dissent and creative alternative solutions may also serve the community. Every organization serving the community should find ways of involving young people.

Links with the outside world. The sound community has seemingly contradictory responsibilities: it must defend itself from the forces in the outside environment that undermine its integrity, yet it must main-

tain open, constructive, and extensive relations with the world beyond its boundaries. The school, for example, must be in some respects a haven for its students, capable of shutting out some of the most destructive aspects of city life, but it can maintain itself as a strong institution only through extensive community relations.

Fragmentation and Common Ground

In listing these eight attributes of an ideal community, my interest is not in depicting Utopia. My interest is to get us away from vague generalizations about "community" and to identify some ingredients that we can work on constructively.

I've mentioned cities, neighborhoods, schools, churches, and the workplace. Many universities are to a deplorable degree "non-communities." Government agencies and a great variety of nonprofit institutions — museums, charities, cause organizations — have the same problem. The generalizations I have offered apply most easily and readily to social entities of moderate size. Obviously it is difficult to think in the same terms about a huge city,

or a nation, or the world. Yet in those far-larger settings the need is even more desperate.

The problem of the typical American city today is fragmentation. The list of the substantive *problems* of the city does not define the city's problem. The city's problem is that it can't pull itself together to deal with any item on the list. It is not a coherent entity. It is broken into segments that have sharply differing purposes, segments that have shown little talent for understanding one another. Or willingness to try.

Any effort by the city to accomplish some larger purpose gets mired in the tensions, cross-purposes, and ultimate stalemate among the segments. The city cannot think like a community nor can it act like one.

The soundest solution to the problem is for leaders from all segments, government and private sector, profit and non-profit, to come together in what I call a *network of responsibility* to think about, talk about, and act in behalf of their city. It happened in Pittsburgh in the 1950s and modern Pittsburgh was born. It happened in New York City in the mid-1970s and the worst fiscal crisis in New York history was solved.

When it happens, there does indeed emerge a constituency for the whole. People come to realize that if the city goes downhill all segments suffer. Obviously all disagreements do not get settled, but the search for common ground achieves some success, and the very fact of searching creates a better climate.

Every institution in the city should have concern for the whole city, and not just concern for its segment of the city or, more commonly, concern solely for itself. Often even the most high-minded organizations have little regard for the community around them. I described the situation facetiously at a national meeting of voluntary organizations recently by saying: "A voluntary group may be profoundly and high-mindedly committed to care of the terminally ill and never notice that the community of which it is a part is itself terminally ill." We must seek to restore a sense of community in our cities; but it may be that the most fruitful approach will be from the ground up, through the more familiar settings I discussed earlier — the school, the church, the workplace, and so on.

How can people work to make their metropolis a community when most of them have never experienced a sense of community in any familiar setting? Men and women who have come to understand, in their own intimate settings, the principles of "wholeness incorporating diversity," the arts of diminishing polarization, the meaning of teamwork and participation will be far better allies in the effort to build elements of community into the metropolis, the nation, and the world.

John W. Gardner is Miriam and Peter Haas Centennial Professor at Stanford Business School. He was Secretary of Health, Education and Welfare from 1965 to 1968 and is the author of the newly published book, On Leadership.

URBAN EDUCATION

ANNUAL REPORT 1989

PARENT-COMMUNITY INVOLVEMENT: COLLABORATION BY ANOTHER NAME

BY BETTY HARRIS JAMES

REGIONAL LIAISON CENTER

APPALACHIA EDUCATIONAL LABORATORY
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The Appalachia Educational Laboratory (AEL), Inc., works with educators in ongoing R & D-based efforts to improve education and educational opportunity. AEL serves as the Regional Educational Laboratory for Kentucky, Tennessee, Virginia, and West Virginia. It also operates the ERIC Clearinghouse on Rural Education and Small Schools. AEL works to improve:

- professional quality,
- curriculum and instruction
- community support, and
- opportunity for access to quality education by all children.

Information about AEL projects, programs, and services is available by writing or calling AEL, Post Office Box 1348, Charleston, West Virginia 25325; 800/624-9120 (outside WV), 800/344-6646 (in WV), and 347-0400 (local); 304/347-0487 (FAX number).

This publication is based on work sponsored wholly or in part by the Office of Educational Research and Improvement, U. S. Department of Education, under contract number 400-86-0001. Its contents do not necessarily reflect the views of OERI, the Department, or any other agency of the U. S. Government.

AEL is an Affirmative Action/Equal Opportunity Employer.

ACKNOWLEDGEMENTS

One cannot spend years teaching, learning, and sharing ideas without unconsciously absorbing and integrating others' points of view. Therefore, many thanks are extended to individuals who have actively evaluated the work of the RLC staff, identified research in the literature that addresses the questions raised during the many interviews, and otherwise made the analyses of the interview data manageable. RLC staff members deserve considerable praise for their diligence in transcribing hours of recorded conversations.

INTRODUCTION

The *Urban Education Annual Report* continues to serve as the primary mechanism for Regional Liaison Center staff to bring into focus the problems of mobilizing nonadvantaged parents and communities in urban areas for active and productive participation in the educational processes of the students in those communities. The 1988 *Annual Report* generated information about the attitudes and beliefs of minority individuals with regard to their perception of the educational system's fulfillment of its responsibility to teach minority, nonadvantaged, and poor children.

*The expected outcome would be
... a climate where the academic,
social, and psychological welfare
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item on the table.*

Efforts to establish working relations with community leaders and parents produced varying results that required new answers and understandings for effective implementation on a broader scale. Those answers were best derived from individuals being engaged in these mobilization efforts.

Consequently, information gathered through unobtrusive observations and notetaking gave rise to insights about how the cultural milieu of a given community sets parameters around the activities of "outsiders." Interviews with many project participants provided

excellent do's and don'ts about operating in a given setting when one expected cooperation and commitment.

The results were (1) a model (see Figure 1 on page 3) and its attending principles for planning parent and community networking strategies, and (2) a series of "advisory" steps for creating an environment in which minority and nonadvantaged parents, community leaders, and school personnel could learn to communicate effectively with each other.

The model offered a means of structuring the wisdom of experience and input from the community. It also provided a way of addressing some of the more serious but short-term problems of at-risk students. In this way, endangered students could benefit from multiple support systems by "staying alive" until systemic change could be actualized within the school setting. The expected outcome would be the capacity for different social subsystems to work together in a climate where the academic, social, and psychological welfare of the student is the only agenda item on the table.

RLC staff, in response to the workscopes in one of their major activities, work with and through urban communities and related organizations as catalysts in initiating partnerships and collaborative ventures between educational stakeholders and educational providers. The 1989 *Urban Education Annual Report*

describes the circumstances under which two collaborative projects were implemented in housing complexes in a densely populated minority/urban area. Summarized interpretations of interviews with the four prime community leaders about observed problems, events, and outcomes provide a snapshot of the total process of creating cooperative projects designed to involve parent-community groups in educational improvement projects.

The first section of this report describes two major collaborative efforts. One such effort initiated by the Regional Liaison Center (RLC) staff was designed for maximum participation; another, initially organized by an Urban League affiliate, relied on the activist nature of a few individuals who had worked on their own and saw personal and goal-oriented benefit in becoming partners in a broader-based effort. Efforts in conjunction with nationally based groups have largely ritualized styles of collaboration; therefore, it was not unexpected that the two projects were different in most ways. Much of what happens to cooperative efforts is peculiar to the particular makeup of that network and most certainly is dependent upon the catalyzing event(s) that cause that grouping to be formed. Consequently, these analyses are of particular events that might not occur again in similar circumstances.

The second section of the report looks at the impact of individual and group organizing experiences, the agendas and expectations that evolve out of those experiences, and the extent to which these factors shape the scope of efforts in collaborative projects.

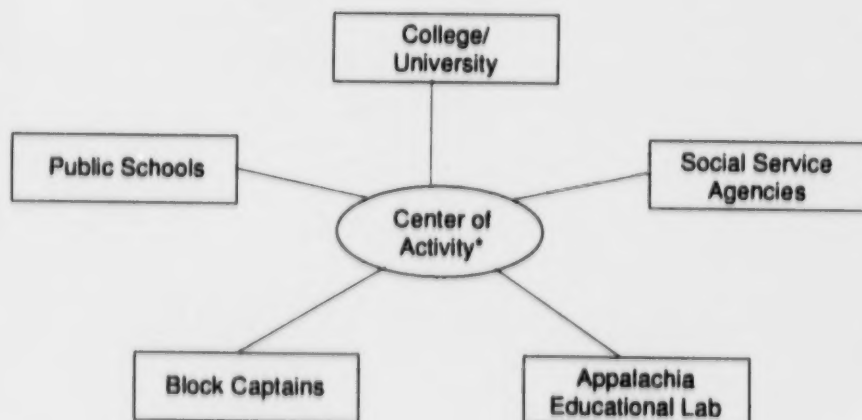
The third section of the report summarizes interviews held with parents, community leaders, and volunteers about the utility of collaboration with school personnel, community organizations, and social agencies. Interviewees were asked to identify community issues related to education, to describe the organizational structure of effective collaboratives, and to discuss the processes of the community efforts in which they had been involved.

The last section of the report is a summarized analysis of the report in the form of lessons learned through collaborative efforts. Connections are made between the goals and workscopes of the field action in 1988 and how the results guided field activities in 1989. Implications for future action and community partnerships are discussed.

The Appalachia Educational Laboratory (through its Regional Liaison Center program), the university's department of education, and the public school system make commitments to provide research information, educational programs, and technical assistance in needs for training, organization, academics, and evaluation within the selected pilot sites or communities. At some point in time when the pilot activities have proven effective and are operating smoothly, the programs will be tailored to the needs of the varied communities and extended throughout the entire city.

A model was designed by groups of participants to bring together a variety of resource providers into collaboration to impact the family and, as a consequence, every student in that community.

These services, activities, training sessions, and so forth would occur in the community at a neutral setting for all partners. It is important to note that appropriate training will occur with public school personnel to enhance their participation in the partnership with parents.



*churches, community centers, recreation centers, available space

Figure 1. Parent-Community-School Model

There is only one sure basis of social reform and that is TRUTH—a careful detailed knowledge of the essential facts of each social problem; without this there is no logical starting place for reform and uplift.

W. E. Burghardt Du Bois and
Augustus Granville Dill,
The Negro Artisan

COLLABORATIVE EFFORTS FOR EDUCATIONAL IMPROVEMENT

*... the agenda must address
the educational needs of the
parents, students, and com-
munity leaders.*

Assumptions of the Parent- Community-School Model

An educational improvement project in Community A was initiated by RLC staff and key leaders, parents, and school personnel in the Tidewater area, while the project in Community B (in close proximity to Community A) was implemented by a national minority organization in the area. The prime players in the two projects were interviewed by RLC staff. The assumptions that guided the interviews and also served as standards for judging the

interviewee's knowledge of community organization strategies were based on RLC's parent-community-school model (1988 *Annual Report*). First, it is assumed that the person going into the community to establish educational activities must operate both inside and outside of that community. That person has to be comfortable with both social systems (community and school), inasmuch as they will generally be different from a cultural, social, economic, and psychological perspective. The individual should be one who has everything to gain and nothing to lose.

That person should have as the only viable agenda the establishment of a project or set of activities that meets the needs of that community. In this case, the agenda must address the educational needs of the parents, students, and community leaders. That person has to be trustworthy—an individual who is willing to step out of the way when internal leadership emerges in the community.

Housing Complex Educational Projects

It is important to note in making the following comparisons that tenant organizations gained control of the common space or "community center" during highly political and volatile times within the housing complex units in this urban city. It is the single space over which housing managers have little or no authority, and they are generally discouraged by central administrators of the Housing Authority from interfering with the operation of the community centers.

Community A. Control, or the appearance of control, emerged as the primary issue in the projects. The idea of the project in Community A was initially introduced to parents, the housing complex staff, the president of the tenants organization for that complex, and the superintendent and area superintendent of the school system. The implementation strategies were also discussed with Housing Authority officials, university personnel, and community leaders. It seemed reasonable to assume that implementation of the project had the full support of all of the key players in that community.

However, when community members in the housing complex in Community A were interviewed some months later to determine why the tutorial and parent training efforts were not continued after the initial thrust, the following answers were given:

- a) We were told by the school that we might interfere with what they were doing with the children.
- b) Volunteers in the program were in conflict with the teachers and principal and could expect no cooperation from the schools.
- c) The coordinator of a school-based parent involvement program was not supportive of the community-based project because of its direct competition with the school system.
- d) The tenant president managing the community center expected to be paid for operating the program in the center.
- e) The PAL (parent activity leader) worker from the school actively criticized the parent training and tutoring proposal developed by the parents.

Because compliance resulted in resegregation of minority neighborhood schools primarily located in public housing areas, it is suspected that there were and still are hostile feelings and feelings of betrayal in the community.

In addition, there was continuing community resentment about a federal mandate to return to neighborhood schools. Because compliance resulted in resegregation and racial isolation of minority neighborhood schools primarily located in public housing areas, it is suspected that there were and still are hostile feelings and feelings of betrayal in the community. These attitudes are probably reinforced by the published school rankings, which almost always

identify racially isolated schools at the bottom of the academic performance ladder.

Community B. The second housing complex (Community B), unlike the above-mentioned effort to mobilize the community, was engaged in an educational improvement effort that had been organized external to the complex. The program was funded, organized, and implemented by the local affiliate of a national minority organization. The project was extremely well organized with young adult and adult role models and tutors drawn from local universities and fraternal and social organizations. Resources were readily available from minority groups and organizations attached to area Naval units, major corporations, minority businesses and enterprises, and from individual minority volunteers from other neighboring communities. The local elementary school principal was visibly committed, and support had been offered from the local church. There

Many examples were offered to describe the manner in which "pig in the poke" programs were dropped on the Black community.

was an advisory council attached to this improvement effort that supported as well as monitored the progress of the activities. A timetable of events had been established. However, in spite of the seemingly thorough organizational planning, the project experienced continuous problems in implementing various program activities. The director of this project solicited technical assistance from RLC staff to assist in resolving the problem of not being able to secure use of the community center with consistency.

Comparisons and Contrasts

Several comparisons and contrasts can be made here. The manager of the community center in Community A was accustomed to outside funding and experts to do the work and expected to serve as the coordinator of an already planned program. A viable relationship existed between school personnel and the manager of the center. A very small, but externally funded, summer program operated each year using the facilities of the Head Start program located in the community center. Because the program served a limited number of children in the complex, numerous parents felt the center was controlled by a small group of families.

The center manager did not intend to involve the total community, but rather to serve those who responded to the services. Although the project had the approval of the parents and community leaders in general, it did not have the full support of those who "controlled" access to the center of activity and normally conducted tutorial activities in the community.

Conversely, the manager of the center in Community B was not necessarily trustful of "funded" programs, even though the organization was minority-based. Many examples were offered by the interviewee to describe the manner in which "pig in the poke" programs were dropped on the Black community. There

was also a feeling of being overwhelmed by the intrusion of the program, as there were numerous outside volunteers on the premises who didn't seem to be aware of the manager's supervisory rights over the building. The manager believed that the lax supervision of the children in the program had seriously impacted efforts to maintain decorum. More importantly, children from Community A walked across the street to Community B to get the tutoring services, much to the dismay of the center manager, who viewed their behavior in the program as less than respectful and felt an imposition related to having responsibility for children not living in the neighborhood.

Perhaps the most striking criticism mentioned by the Community B center manager was that "these groups" come in and raise the expectations of people and give them things on a silver platter. Then when the money runs out, people in the community neither have anything nor have they been taught how to fend for themselves.

The involvement of students from another community in the summer program was discussed at length with the project director during his interview. He indicated that the concept of the Black community extended beyond spacial proximity. Rather, lifestyles, customs, kinship, language, and race establish community boundaries. Consequently, he viewed the mobilization of resources to deal with a problem as a collective effort and believed no student should be turned away.

It is extremely important to note that both managers had long-standing reputations both inside and outside the immediate community for being committed to the housing complexes and to the Black community. Programs have been ever-present in the community, and these individuals' efforts to help families improve their position in life go without challenge. They were extremely active and strong leaders in the Tenants Organization Council. Obviously, the difference in philosophies about self-help, as opposed to having someone else do it for you, operated in both circumstances. Community B certainly was not out of line with or contrary to advisory comments offered in the 1988 *Annual Report*.

An interesting reference can be made to a study prepared for the U.S. Office of Education by Paul Berman and Milbrey McLaughlin (May 1978) on implementing change and sustaining innovations. The authors suggested that packaged approaches to planned change typically were too inflexible to permit the local adaptations necessary for effective implementation. They further suggested that pay for training or extrinsic rewards did not stimulate the commitment of teachers who did not see the project in their own self-interest. These research findings are very close to the philosophical posture taken by the Community B center manager related to the belief that "bribing" the parents with food and block parties was not the appropriate way to develop community unity and commitment.

In Community A, the question of funding was believed to be the reason a

... "bribing" the parents with food and block parties was not the appropriate way to develop community unity and commitment.

less-than-enthusiastic response was made by community leaders (not indicative of parents). In Community B, a highly organized and well-planned tutorial program would have been expected to alleviate problems of participation. Such was not the case. Neither program anticipated the need to explore how the configuration of the various program activities would impact the personal and/or operational needs of the center manager. However, it should not be assumed that modifications should have been made simply from the desire of a single individual to have personal ownership in that community.

In both cases, there were prices to be paid for not defining clear-cut roles in the beginning. For example, the description of AEL's relationship to the Office of Educational Research and Improvement might have led individuals to assume that RLC was able to fund programs. There were also costs associated with wittingly or unwittingly planning around those who were not satisfied with their role or who were in disagreement with the philosophical underpinnings of the entire program.

... fruitful outcomes in change efforts ... generally come about only when pressure tactics and nonnegotiable, uncompromising stances have been taken.

Critical Questions

There are two basic strands that can be identified and perhaps woven into technical assistance, training activities, and/or formal community research hypotheses.

First, initial efforts to identify and enhance local leadership, to catalyze agencies and groups of individuals for action, and to recruit and involve appropriate political support serve as the basis for designing com-

munity action strategies and for pursuing those strategies by the most effective means available. Further, attempts to promote community action require the existence of a problem, the identification of that problem, and the presence of the kind of community that can come together as a collective unit to solve that problem. However, fruitful outcomes in change efforts, through the mobilization of nonadvantaged and minority communities, have generally come about only when pressure tactics and nonnegotiable, uncompromising stances have been taken. What gems of wisdom are available to the community organizer(s) who would avoid the problem of, on the one hand, successfully providing organizing skills and strategies that are critical to the mobilization process and, on the other hand, ensuring that these same actions will not be carried into the planning and operational arena with other partners?

Secondly, schools appear to be singular autonomous units, no matter what superintendents or area superintendents believe with regard to nurturing productive involvement of communities and parents. Given the research that suggests that pay does not improve commitment if the activity is not viewed as being in the best interest of teachers, how do schools reorganize their time in a manner that allows school personnel to become involved in training or negotiating activities to improve their relations with communities? How do administrators or community members present the possibilities of success in such a manner that

teachers are willing to "bank" on the benefit that accrues if they change their actions and activities to accommodate the needs of the community?

Finally, the capacity or willingness of social service providers to be involved in a parent-community alliance to enhance noninstructional needs for children raises a serious question. What kind of time and effort must minimally be contributed by agencies to fulfill the role as members of a collaborative process?

DIFFERENCES BETWEEN COLLABORATIVE EFFORTS

The 1988 *Urban Education Annual Report*, in its effort to facilitate partnerships between resource providers, emphasized the need to understand leaders who emerge and sustain themselves over time in the community, as well as to understand the total community structure. Close observation of the leadership styles and expectations related to the outcomes of educational improvement efforts brings into focus some of the differences between various efforts to form cooperative alliances.

In educational improvement activities, there appear to be some differences in

processes as well as potential for outcomes based on (1) the amount of "organizing experience" of community participants, (2) the individual/group agendas and expectations, and (3) the intended scope of the improvement effort.

In small central city areas where there were reasonably large numbers of minorities, civil rights groups appeared to be the only unifying process functioning.

Organizing Experience

The term "organizing experience" is defined within this context in terms of a person's past involvement in structured meetings, including the time requirements and constraints of attending those meetings.

One strand that can be easily identified with nonprofessional volunteers is previous involvement in civil rights movements and community/self-betterment movements. The two most active parent workers in Community A were particularly notable for their willingness to devote lots of time without expectation of compensation of any type. They were best known for their involvement in the welfare rights organization and the Muslim movement in the community in prior years.

There appeared to be an equal number of professionals and nonprofessionals enrolled as members of the local civil rights organizations, while only the professionals indicated membership in the national organization with an economic/political base. In small central city areas where there were reasonably large numbers of minorities, civil rights groups appeared to be the only unifying process functioning. Where that was the case, community members did not tend to respond to meetings around educational activities unless there was some crisis situation that had evolved into an organizationally supported issue.

Both educational and noneducational professionals indicated their long-term roles as leaders in tenant organizations, church activities, fraternal and social organizations, and service organizations in colleges and universities. Several interviewees connected their commitment to community service to parental

advice "not to forget their roots" and to observations of role models throughout their youth who performed such service in the community.

While levels of education are certainly critical to organizational skills, frequent and ongoing "opportunities" to learn and implement those skills are perhaps equally, if not more, important to mobilizing nonadvantaged or minority communities and parent groups. Individuals who have not attended many meetings, whether socially or on a formal basis, do not like to and generally will not attend meetings that have no immediate consequences.

Agendas and Expectations

Individuals and groups of individuals have distinctive operating styles related to their purposes, their goals, and their personal involvement with the outcomes or success rates of their efforts.

For example, a group of parents advocating excellence in education requested technical assistance from RLC staff in coordinating and conducting a full-day workshop for parents in their county on parent involvement. Their goals were generic, and the outcomes were defined only as a need to make parents aware of the benefits and/or problems of being involved in the decisionmaking processes of the school system. The leader of the group cautioned RLC staff not to use the word

Not having to raise the issues themselves obviously met this group's need not to be viewed as troublemakers.

"empowerment" when preparing brochures and announcements about the workshop. However, the outspokenness of the group, their political astuteness, and their willingness to identify and discuss sensitive issues in the educational arena did not compute with the leader's caution.

When queried about this apparent discrepancy, the leader explained that the workshop process provided opportunities to discuss and evaluate issues that were predetermined by RLC staff as being related to parent involvement. Not having to raise the issues themselves obviously met this group's need not to be viewed as troublemakers. They were a group of interacting parents throughout the county sharing a perceived educational need and coordinating their collective resources to produce a satisfactory response to that need.

On the other hand, members of an advocacy group interested in a specific issue, quality education for severely handicapped children, were consistent in identifying themselves with the goals of the group. They referred to themselves as a coalition, were openly committed to the goals of the group, viewed themselves as the front rank of all other parents of developmentally disabled students, and accepted public criticism of the school system and school personnel as a strategy. Further, the group used a variety of tactics and strategies, from political

persuasion to public confrontation, to accomplish their stated goals. Variations in approaches were allowed to exist, prompted by the need of the group to accept individual styles because members were so few in number.

One of the major issues that developed out of the training session provided for this group was whether it is possible to keep a reasonable balance between sharing the relationship as a member of the group and maintaining one's individuality and right to make independent judgements about the efficacy of the goals, decisions, or behaviors of the group as a whole. These concerns arose from beliefs that individual members were acting in ways that were perceived to be detrimental to the group and creating a perception that was not indicative of the group as a whole. This translated into members who were confrontational and annoyed school administrators versus members who were more apt to work within the system in a cooperative manner.

What was different within this coalition of parent advocates was the presence

When educational improvement efforts are established without contact with schools, isolation of community effort has potential for increasing suspicion and hostility on both fronts.

of extraordinary intellectual acuity. Their need was not necessarily for information; rather, for a neutral individual of strong leadership abilities, particularly adept at solving complex and abstract problems, to structure their organizational processes and provide procedures that were external to individual members but acceptable to the total group. This unit perhaps was the best example of an earlier reference to a group that has developed highly proficient skills in confrontational and nonnegotiable stances and has carried over the use of those skills into the planning and organizational arena.

Scope of Effort

A written summary of a conference on school/community collaboratives (Ascher 1988) identified differing levels of effort from singular activities to comprehensive, integrated approaches to school improvement efforts.

When parent and/or community groups began to define their needs and describe how they could most effectively be met, it became apparent that collaboratives could start out as singular academic and other school-related improvement goals (e.g., decreasing dropouts, reducing the number of in-school fights, increasing the number of parents who attend school functions, etc.). On the other hand, cooperative efforts could be expected to have a far more comprehensive goal (e.g., intensive parenting training activities linked to the empowerment of parents to have a greater voice in the education of their children and/or entire communities being empowered to participate in the fundamental restructuring of the school or the school system). The latter seemed less related to cooperating with schools and more directed toward community self-help. When educational improvement efforts are established without contact with schools,

isolation of community effort has potential for increasing suspicion and hostility on both fronts. However, one needs to ask the question, can communities and parents become involved with schools without having first developed whatever expertise is needed to be successful in that involvement?

Several individuals described collaboratives or coalitions using characteristics that more nearly matched those of the early 1960s. Political action in the sixties used public criticism, activism, and demonstrations, among other things, as challenges to the system and strategies for focusing on the shortcomings of the system.

The scope of effort has perhaps an unintended impact on cooperative relations among groups. When scopes are narrow and problems are singular in nature, coordination of efforts can be loosely knit and often short-term. When collaborative efforts include instructional and noninstructional needs of students, parents, and communities in general, the organizational or collaborative requirements become increasingly demanding and time-consuming.

INTERVIEWS

Personal Versus Educational Needs

Parents, community leaders, and program volunteers in a defined area were interviewed to ascertain whether there were differences in their perceptions of what it meant to structure collaborative programs in the community and whether the process was worthy of their time. In many instances, parents made references to personal problems. When there were attempts to move the conversation back on target, respondents simply answered in a manner that allowed them to relate their answer back to the personal issue they had been discussing.

... one mother said, "I have enough on my hands just dealing with the streets. The police can't do their job, the welfare can't do their job, teachers can't teach. I don't know what you want from us."

While there is not space to cover such a wide range of topics in this report, it is critical to make note that individuals living in these housing complexes appeared to be so overwhelmed by the day-to-day existence of their lives that they were unable to disassociate the very personal needs from broader needs that would benefit all of the children. One example would be of those mothers who, in their own self-evaluations, have been extremely successful in raising their children because they have managed to save their children from drugs, vio-

lence, and even death and do not consider educational issues to be a top priority. If their children made it through their teenage years without too many problems, the parents were satisfied. In fact, one mother said, "I have enough on my hands just dealing with the streets...the police can't do their job, the welfare can't do their job, teachers can't teach. I don't know what you want from us." Another mother suggested that if her son did what she asked him to do in terms of staying home while she worked, she didn't intend to hassle him about grades.

Community Issues

Individuals were asked to generally identify the community issues related to education and their schools with which they were concerned. By and large they stated:

1. Minority students are either at-risk of being tracked into nonacademic, vocational, or special education programs, or are already in those programs.
2. Community programs need to conduct training sessions and follow them up with assistance for parents to create a home environment (or an environment in the community) that reinforces and expands learning for students.

3. Community-based groups should provide training to help parents understand the structure and functions of (1) advisory councils, (2) school-based evaluation teams for special education assignments, and (3) legal rights of children and effective advocacy strategies.
4. Teachers and principals should be trained in the culture of the community and in effective ways of interacting with students and parents of a minority community or group.
5. Community groups should develop low-cost programs that communities can implement that will change the academic performance of Black children immediately.
6. Social service agencies need to be involved since urban youth are the essential users of the vast majority of those services.

Organizational Structure of Collaboratives

Individuals also were asked to describe what they thought the organization of a collaborative should look like and what kinds of services it should provide to the community. They were specifically asked to comment on the community projects that had occurred in their immediate area and whether they would like to see the projects repeated. Three distinct configurations were discerned in discussing community action to create cooperative educational improvement projects.

The first was a comprehensive collaborative network staffed by individuals genuinely interested in meeting the full range of academic and nonacademic needs of the children and youth in that community. This description was consonant with the original ideas introduced by prime leaders in the area when the model for parent-community-school partnerships was first conceptualized. The model created by this community effort included representatives who could effectively deliver the agency services and political effort required, and school personnel had a primary role in the structure.

A second view of how programs should be organized created a picture of a variety of community resources coming together to conduct activities that would meet both the instructional and noninstructional needs of the children and youth of that community. The community action was generally expected to be prompted by outside professionals. While it was recognized that schools were not effectively meeting the needs of the students in that community, school personnel were not actively sought out as partners. This approach basically appeared to fill a small but important void in the educational and socialization process of the children. It was thought to be successful because it also served the

It was thought to be successful because it served the humanitarian needs of the volunteers and the community service needs of university and college personnel.

humanitarian needs of the volunteers, served the community service needs of university and college personnel, and represented self-help.

A third view was a purely community-based collaborative activity in which the needs, goals of the community, and the strategies to accomplish those goals were self-determined by community persons—parents, community leaders, community members, or individuals associated with that community on a consistent basis. Agencies were expected to deliver services, and schools were expected to provide equality and excellence in education. The involvement of parents and community persons was based on the political sophistication and astuteness of community individuals to keep the delivery system operating properly by cooperation or by force.

Collaborative Processes

Community groups are not always representative of the community; small factions or cliques come into power and indeed take over because few people attend the meetings.

Collaborative processes should be designed to make the community more sensitive to itself, to its fund of valuable resources, and to its capacity to direct itself. Interestingly, past events where activities involved parents and community members in generating needs statements and in recommending preferred solutions to those statements eventually became problematic. It would appear that those processes designed to empower the community are viewed as the onset of dilution of central power of the controlling institution, in this case the school. Obviously a move toward parents becoming articulate and self-

directed in school matters makes educators hesitant about supporting the training of parents for meaningful involvement in the education of their children.

Heightened community awareness has both the capacity to enhance collective action and to alienate potential partners. Community leaders and school personnel living in the immediate area and university personnel all indicated the lack of experience in implementing cross-institutional networks and collaborative efforts. One comment was that school personnel and social agencies tended to work only with traditional, noncontroversial groups to the exclusion of certain civil rights groups to avoid external political problems inherent in that process. Yet, the majority of respondents indicated that resolution of educational issues was generally accomplished through the local NAACP branch.

One of the prime leaders had stated in an earlier interview that the inflexibility that is normally accorded to bureaucratic structures such as schools is not peculiar to those institutions. Community groups are not always representative of the community; small factions or cliques come into power and indeed take over because few people attend the meetings. Consequently, community actions become hostage to personal agendas and power-brokering. It was suggested that project directors have to be ever vigilant, and many people are not willing to establish that kind of emotional proximity.

One important concern was that any kind of collective action entitled **school improvement** makes a public issue out of the weaknesses of the school far more often than the strengths, and these are the reports that newspapers prefer to print. Therefore, it was suggested that parents, community leaders, and educators are not always willing to have the shortcomings of their school and their children publicized. One example occurred in West Virginia where a project was to focus on three elementary schools heavily populated with poor and minority students. The plan was presented to the board of education in a public meeting. The story in a local newspaper the next day indicated that "troubled" schools were to receive additional help from the system. The project was painfully slow in recovering from the negative letters to the editor from principals, teachers, and community members.

Yet, it is important to acknowledge that no one enters a collaborative relationship to increase a negative or harmful situation. Therefore, when engaged in relations with minority, poor, and ethnic groups, there is a presumed interest in alleviating the problems that besiege those individuals. If the problems are vested in the structural behavior of the school personnel, then one must ask whether the solution can be affected elsewhere.

Finally, one of the concerns most individuals had was whether the effort put into the programs, parent training sessions, or attempts to work positively with educators would ever be fruitful. Productive interactions, according to many prime leaders and community members, did not appear viable enough to move forward to long-range goals that could eventually alleviate some of the burdens of teachers and allow them time to give their full attention to the instructional needs of the children and youth.

Across the variety of groups with differing levels of educational, social, and economic assets, one theme remained consistent: "Schools don't want us involved at any level higher than grading papers or washing the slate boards."

LESSONS LEARNED THROUGH COLLABORATIVE EFFORTS

RLC staff envisioned the building of networks, coalitions, or large-scale collaborations to improve intercultural communications between minority/ethnic, nonadvantaged parents and communities and school personnel; to identify and focus on selected school improvement projects; and to provide comprehensive services to families and children who remain in a perpetual state of "at-riskness." By and large, this effort was to develop and/or examine models for effectively working with parents and other significant stakeholders whose informed assistance is so essential to the much-needed partnerships and networks

for improving the educational outcomes of children. In other words, RLC staff worked toward cooperative outcomes that could provide new forms of assistance to students.

There is always the question of whether RLC staff have made a difference related to their activities and efforts in a given situation.

It is believed and verified by positive feedback that needs assessment, problem identification, networking, and identification of resources and models have more than met the needs of the communities and groups that have interacted with RLC staff. The use of the information generated in the

*... a new awareness that parents
who are neither minority, ethnic,
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school matters.*

community training sessions and conferences served to develop the model. The resulting information flowed back into the community-based activities. The success of these activities is the reality check verification that the process worked. Networks and coalitions are operating, communications have improved, and the knowledge base on involving underrepresented groups has expanded. What is not so clear is the degree to which RLC staff can at a distance provide the kinds of services that allow for large-scale skill training, management advice and support, and ongoing formative evaluation for refinement and/or revision of comprehensive, community-based educational improvement collaboratives.

Nevertheless, at this stage, the degree of that intended educational change may be secondary to: (1) the effective increase in the belief of parents that they can in fact make a difference, and (2) a new awareness that parents who are neither minority, ethnic, nor nonadvantaged share the belief that school personnel do not want them involved in school matters.

One lesson learned is the absolute necessity to clarify what is meant by collaboration and its intended scope with regard to long-term outcome and evaluation of same. To collaborate can mean to engage in loose partnerships, alliances, and to agree to cooperate in ways that maximize the effectiveness of an activity or service. On the other hand, collaborative can mean the mobilization of public

and private service providers to impact an audience on the physical, social, emotional, and intellectual levels.

The former clarification represents more closely the kinds of activities RLC staff were involved in during FY 89. The latter represents the model developed in FY 88 and certainly explains what is viewed as being problematic simply because the comparison is made against the model. Preplanning programs must prepare individuals, organizations, and schools—prior to implementing the actual project itself—to join in these partnerships with some degree of proficiency and expertise.

There is no doubt that collaborative groups need training in interactive processes. There was little, if any, apparent expertise in problem-solving, structured communication settings, and time-directed planning. While individuals professed to understand that differences in opinion and basic goals would initially exist, few of the professionals appeared to be trained to avoid engaging in personal preferences and evaluations of need statements, goals, and objectives. A tendency toward debating philosophical issues of how and what students should be taught and why they don't learn appears to be absolutely resistant to attempts to isolate educational problems that lend themselves to solutions. Unfortunately, this kind of interactive process between school personnel and parents and other change agents often causes irreparable damage before it is even apparent that there are problems.

Possessing expertise in the decisionmaking process and developing the willingness to share decisionmaking powers are both important. It has been suggested that much of the fear of parent involvement stems from teachers and principals who do not value their own expertise and subsequently feel inadequate and intimidated when that competence is brought into issue. That they themselves have not been involved in making substantive decisions about the educational climate of the school suggests that perhaps many educators have not developed the confidence and capability required for competent decisionmaking skills.

While there is much lip service paid to parent involvement programs, some concern always seems to surface when training is purposefully designed to assist parents in articulation and empowerment. It is crucial for educators to understand that it is only after parents have become involved and been trained, and then found the doors still closed to them, that they revert to adversarial postures. Clearly defining roles from the outset helps establish an environment characterized by sharing responsibilities, setting limits on philosophical debates, and preventing turf battles.

Summarily, parent-community involvement structured or based on collaborative activities is a long-term, broadly focused activity. Representatives from agencies, organizations, and groups must have direct commitment to and responsibility for accomplishing the goals of the collaborative. Where parent

It is crucial for educators to understand that it is only after parents have become involved and been trained, and then found the doors still closed to them, that they revert to adversarial postures.

agencies or organizations are involved, the levels of participation, e.g., assisting in coordination, providing direct services, etc., must be outlined and directed toward meeting the needs of the collaborative, in addition to the normal needs of the service providers.

Therefore, stages or increasingly complex levels of interaction might provide a workable model which moves toward the final product—a comprehensive, collaborative model involving parents and community members and relevant provider agencies. Small increments of success are difficult to measure. Evaluating formatively lends itself to a more accurate assessment as to whether or not a multi-stage process works.

When it becomes clear that the knowledge base related to one specific problem has broadened, a more sophisticated method of expanding that knowledge becomes critical. Several points emerged:

- (1) There exists considerably more knowledge related to educational issues among nonparticipating, minority, and nonadvantaged parents and communities than previously expected,
- (2) There exists a level of diversity within a given minority community about current educational issues and remedies not widely documented in the literature,
- (3) There exists a degree of pessimism about the schools' capacity and willingness to change among nonethnic, nonminority, advantaged communities.

Verification of this evidence must be collected in a more systematic method.

On the other hand, the principles and advisory steps set forth in the development of the parent-community-school model (FY 88) held true to course. The model was conceptualized to assist change agents in designing interactive processes and provide safeguards for not overlooking issues evolving out of the cultural environment. What appears to be needed is the addition of logical, step-by-step processes of how to manage the day-to-day processes and problems that emerge. Simply stated, the FY 88 model needs to be expanded to include step-by-step components that include preplanning and implementation roadmaps indicating how one can get from the point of origin to the intended point of outcome. This expanded model should allow for transition from short-term collaboratives to long-term, comprehensive collaboratives.

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Blueprint for Schools and Community Development

Schools and Communities are Interdependent

Rural schools and communities are linked together symbiotically; the health of one is dependent on the well being of the other. In many rural communities, the school district boundaries are the psychological borders of the community. Suggestions to consolidate a smaller school into a larger are countered by local beliefs that, "If you take our school, this town will die." Conversely, the school suffers when a community can't provide jobs for families and they move where there are jobs, taking with them their taxes and students.

Schools and communities are interdependent. This article is about ways schools can use the idea of community development to improve the current education of their high school students and create a more vital community in general. We call this "Community As a Focus of Study." Specific articles follow that deal with components of the program. These include involving the schools and communities in the schools, studying the community, teaching students how to create and operate small businesses and integrating this "real kids doing real work" approach into existing or new courses. School involvement in community development is one of those rare opportunities for enhancing the school's interests and the public good simultaneously.

Community and Economic Development: What is It?

Community: the people with common interests living in a particular area.

Development: to evolve the possibilities, to promote growth.

Economics: of, related to, or based on the production, distribution and consumption of goods and services.

Webster's New Collegiate Dictionary

Community development includes, but is not limited to, economic development. It can be defined as "a process to emphasize the common interests of people and evolve new possibilities for production, distribution and consumption of goods and services."

Definitions are necessary, but not very satisfying, when trying to understand a new concept. The following section will illustrate where the notion of community development comes from and what it means to real people working on it now.

Rural communities have changed. The common interests that bound people together used to come from the common ways they made a living. Diversified economies are now the rule, and many rural Americans commute long distances to work. A sense of community must be rebuilt, and other common interests (hopes for their children, appreciation for the rural way of life, a desire to create their own destinies) must be emphasized if Rural America is not to empty. As a nation, we can't afford vast, deserted areas between snarled urban sprawls.

Ideas about development have also changed. "Smokestack chasing" was the preferred development strategy of the seventies. Economic development

councils blossomed across the country and dedicated people put in long hours and spent significant amounts of local resources to attract industry. Alas, to little avail. The same manufacturing plants that moved from the Northeast to the Southeast in search of lower wages have now moved offshore. Industrial parks stand deserted across the land, and tumbleweeds blow past streets and sidewalks leading nowhere. In the current economy, growth is predicted to take place in small businesses serving market niches. A stronger economic base and healthier community are more likely to come from developing existing resources, rather than trying to acquire new ones.

Education, in the broadest sense, is critical. Development experts know that retraining is essential to develop needed skills in people now in the work force. Training for future employment needs is also necessary. In addition to their role of preparing students to get jobs, schools can play a powerful role in revitalizing rural communities and their economies by teaching students how to create jobs. In this way, schools and communities learn, along with their students. Community development is an educational process through which a community learns to survive. The members of a community, including students, recognize their responsibility and power to create the future. "Thinking globally and acting locally," schools help design activities that enhance common interests, provide missing services and products, and foster norms of public service.

Rural Schools can Help

According to Jonathan Sher¹ (1987), President of Rural Education and

Development, Inc., "The idea that education is connected to economic development has become one of the cornerstones of the educational reform movement in the 1980's." Rural schools bring unique (and often overlooked) resources to community development efforts.

- Each faculty member represents a source of talent and knowledge which can, and often does, extend far beyond the classroom.
- When enthusiastic, energetic volunteers are needed for community projects of all kinds, the school can provide them from their rich and readily available youth resource.
- Schools are a significant physical presence and a major public infrastructure investment. In many rural communities, they are the only public space. School buildings, facilities and equipment may be made more affordable through cooperative purchases and maintenance, as well as cooperative use.
- Services provided for students such as career counseling, skill assessment and vocational training can benefit adults in the community as well.
- The purchasing and payroll power of the school is considerable. In many rural communities, the school has the largest and most consistent payroll. If all school supplies were purchased locally, the school could likely be the largest local buyer of such items.
- In addition, an often overlooked resource is the financial capacity schools have to draw outside dollars into the local economy from private, state and federal sources (Sher, 1987).

Conversely, education can be better served when the community is actively used as a resource by the school. A curriculum that includes an emphasis on understanding and strengthening communities can provide a transfusion to a community that feels defeated and discouraged. Teaching students how to create jobs can transform an economically anemic community. The sense of community becomes stronger and warmer as residents discover even more interests in common, by working for the common good. Finally, the education of students is enriched as they learn how to effectively "give something back" to the com-

munity, and that they can really make a difference.

All folks living in the Lyman, SD school district were invited by Cris Anderson, the Superintendent, and Ron Stonebeck, the band director, to join a community chorus. The 200 people who responded rehearsed The Battle Hymn of the Republic and streamed down from the stands at halftime on a crisp, fall evening during Lyman's homecoming football game. The band played and the voices thundered in the cool air. As the music hushed, fireworks exploded from a nearby hillside. That evening was one everyone in Lyman's school (370 students, K-12) will never forget.

Community Development Enhances Education

The role of the school in American society is to educate young people so they become informed voters and productive workers. This was a simpler task in simpler times, when rural populations were so small that most people personally knew the candidates for local and state offices, and productive adulthood meant growing into jobs in agriculture or taking Dad's place logging, in the mines or fishing. Times are now more complex. Rural, small schools have been urged and required to reflect a "one best system" model. As a result, more and more of the curricula is standardized and concentrates on larger units of analysis, farther away.

Eliot Wiggington says, "students must have a firm understanding of the contemporary institutions that shape our lives. They must know the inner workings and ultimate purposes of our political systems. They must have an understanding of themselves as members of a society with a history and a future."²

Schools need to know about their communities if they are to assist with community development. Knowing comes from research, in this case, and not just from "being there." Students are taught to gather information from existing sources (census data, material available from state, county and municipal sources) and from original sources (community surveys they design

and conduct, interviews with residents). What happens is a reaffirmation of the research on attitude change: the more they learn the prouder they feel about who they are and where they live.

"I used to think this place was the pits, that nothing ever happened here. I was sort of ashamed to say I came from way out in the sticks. Now I know how this part of the country got settled. My family was part of that and it was really hard times. I'm pretty proud of coming from that kind of stock. Not just anybody can make it out here."

As students learn more about their communities, the chances increase that they may wish to remain, or leave for a time and return when they are ready to raise families. A personal investment of time and energy brings with it a commitment to success and an interest in seeing that success happens. Understanding and involvement make the difference between young people who see their communities as places of the future and those who see them only as launching pads.

School leaders, convinced this is a viable approach to enhancing student learnings, begin by mobilizing community leadership.

The articles, "Blueprint for Studying Your Community" and "Community as a Focus of Study" both have more ideas and examples of how students' education is enhanced by a "real life" community study approach. "Blueprint for Entrepreneurship" explains student-created small businesses, and "Blueprint for Designing Courses" shows how to integrate this approach into existing or new courses.

¹ Jonathan Sher (1987) Speech at "Education in Appalachia" Conference, University of Kentucky.

² Eliot Wiggington (1985) *Sometimes a Shining Moment: The Foxfire Experience*. Garden City, NY: Anchor Press/Doubleday.

Twenty Clues to Rural Community Survival

An Annotated List

1. *Evidence of Community Pride*

Successful communities are often showplaces of community care and attention, with neatly trimmed yards, public gardens, well-kept parks. But pride also shows up in other ways, especially in community festivals and events that give residents an excuse to celebrate their community, its history and heritage.

2. *Emphasis on Quality in Business and Community Life*

People in successful communities believe that something worth doing is worth doing right. Facilities are built to last, and so are homes and other improvements. Newer brick additions to schools are common, for example; and businesses are built or expanded with attention to design and construction detail.

3. *Willingness to Invest in the Future*

Some of the brick-and-mortar investments are most apparent, but these communities also invest in their future in other ways. Residents invest time and energy in community betterment, for example, and they concern themselves with how what they are doing today will impact on their lives and those of their children and grandchildren in the future.

4. *Participatory Approach to Community Decision-Making*

Authoritarian models don't seem to exist in these communities; and power is, in fact, deliberately shared. People still know who you need on your side to get something done, but even the most powerful of opinion leaders seem to work through the systems—formal as well as informal—to build consensus for what they want to do.

5. *Cooperative Community Spirit*

Successful rural communities devote more attention to cooperative activities than to fighting over what should be done and by whom. The stress is on working together toward a common goal and the focus is on positive results. They

may spend a long time making a decision, and there may be disagreements along the way, but eventually, as one resident put it, "stuff does get done."

6. *Realistic Appraisal of Future Opportunities*

Many of the communities have already learned an important strategic lesson, namely, building on your strengths and minimizing your weaknesses. Few small communities believe that they are likely to land a giant industry. Many of them say they wouldn't want one if it came along, fearing that too much reliance on one industry would be unhealthy in any event.

7. *Awareness of Competitive Positioning*

The thriving communities know who their competitors are, and so do the businesses in them. Everyone tries to emphasize local loyalty as a way to assist local businesses, but many businesses also keep tabs on their competitors in other towns—they don't want any of the hometown folks to have an excuse to go elsewhere. Business and community leaders worry about what they don't have locally and wonder how many people are drifting to other towns to get it.

8. *Knowledge of the Physical Environment*

Importance of location is underscored continually in local decision-making, as business and civic leaders picture their community in relation to others. Beyond location, however, communities are also familiar with what they have locally.

9. *Active Economic Development Program*

An organized and active approach to economic development is common in the successful communities and it involves both public and private sector initiatives, often working hand in hand. Private economic development corporations are common, either as an arm or an outgrowth of a chamber of commerce or commercial club.

10. *Deliberate Transition of Power to a Younger Generation of Leaders*

Young leadership is the rule more than the exception in thriving rural

communities, where people under 40 often hold key positions in both civic and business affairs. In many cases these young people grew up in the town and decided to stay or returned after college. In many other cases, they are people who have decided to make a life in the community even though they grew up elsewhere.

11. *Acceptance of Women in Leadership Roles*

Women hold positions of leadership in these rural communities, and those roles extend beyond the traditional strongholds of female leadership. Women are elected as mayors, are hired to manage health care facilities, develop entrepreneurial ventures, are elected as presidents of chambers of commerce.

12. *Strong Belief in and Support for Education*

Good schools are a point of pride, as well as a stable employment force; and rural community leaders are very much aware of their importance. Residents want their children to get the best education they can afford. Beyond that, the school is often a center of social activity, and sports and other school events are well-attended.

13. *Problem-solving Approach to Providing Health Care*

Local health care is a common concern in rural communities, but strategies for health care delivery vary, depending on community needs. One community decides that keeping a doctor in the town is important; another focuses on emergency medical services; another invests heavily in comprehensive hospital-based services. A health care program, of some kind, is often viewed as essential to the community's health, as well.

14. *Strong Multi-Generational Family Orientation*

These are family oriented communities, with activities often built around family needs and ties. But the definition of family is broad, and it includes younger as well as older generations and people new to the community. In one community, a resident said everyone is

considered a cousin shortly after their arrival.

15. *Strong Presence of Traditional Institutions that are Integral to Community Life*

Churches represent perhaps the strongest force in this regard, and community activities often include or are centered on the church. Schools play a similar role. Service clubs retain a strong influence, and that influence is felt in community development as well as in social activities.

16. *Sound and Well-Maintained Infrastructure*

Rural communities understand the importance of traditional infrastructures—such as streets and sidewalks, water systems, sewage treatment facilities—and they work hard to maintain and improve them. But many of them are also worried that in this area especially they'll need outside funding help to keep up, and they wonder whether

it will be available to them in the future.

17. *Careful Use of Fiscal Resources*

Frugality is a way of life in the successful small communities, and expenditures are made carefully. People aren't afraid to spend money, when they believe they should, and then, typically, things are built to last. But neither are they spendthrifts. Expenditures are, again, often seen as investments in the future of the community.

18. *Sophisticated Use of Information Resources*

Rural community leaders are knowledgeable about their communities beyond the knowledge base available in the community. In one town, for example, retail sales histories from the University of Nebraska were studied for trend information. In another, census data were used to study population change. In another, modern computer equipment kept people up to date on financial matters.

19. *Willingness to Seek Help From the Outside*

There's little reluctance in successful rural communities to seek outside help; and many of them demonstrate their success at competing for government grants and contracts for economic development, sewer and water systems, recreation, street and sidewalk improvement, and senior citizen programs.

20. *Conviction that, in the Long Run, You Have To Do It Yourself*

Although outside help is sought when appropriate, it is nevertheless true that thriving small communities believe their destiny is in their own hands. They are not waiting for someone else to save them, nor do they believe that "things will turn out" if they sit back and wait. Making their communities good places to live for a long time to come is a pro-active assignment, and they willingly accept it.

The School of the Future Will Be a Community School

By C. William Brubaker

TED SCHWINDEN, Governor of Montana, addressed the problems and opportunities of our aging school facilities in the influential 1987 study published by the National Governors' Association, *Time for Results: The Governors' 1991 Report on Education*.

The Governor noted that in the coming decades we will replace most of our school facilities and asked, "Will we design what we have now or design something better?"

The U.S. has school buildings that represent an enormous investment (something like a quarter of a trillion dollars), but these resources are often underused. Too often, they are open only a few hours a day, five days a week, nine months a year, and only for students aged 5 to 18.

Governor Schwinden and members of the Governors' Task Force on School Facilities recommended change: using schools to satisfy broader community needs, with the facilities open more hours of every day for all 12 months of the year. Many people find the proposal appealing, but tradition moderates change.

Americans have about 8 million fewer children in school now than they did in 1970; about 8,000 school buildings have been closed. If each building is valued at \$1 million, the value of those closed buildings is \$8 billion. But we all recognize that the closing of schools has a negative impact on neighborhoods. Governor Schwinden's Task Force concluded that a better idea is to expand the functions of schools, creating "community schools," with closer ties to communities.

The community school idea has

been championed by the Charles Stewart Mott Foundation for more than 50 years. The National Community Education Association continues to be an important forum for ideas about the operation and management of community schools.

Summer programs and year-round use of schools, with broader community involvement, would mean broader community interest and support. With services ranging from day care for infants to programs for senior citizens, most community residents would be interested in the community school as a community center. Clearly, this idea is growing in acceptance. The school of the future will be a community school.

COMMUNITY SCHOOLS

The community education idea includes a number of important concepts (Boo and Decker 1985):

1. **Learning is a lifelong process, a continuous spectrum.** It is a process of living, as John Dewey pointed out, not just preparation for future living.

The community school serves not only students of a particular age, but an entire community. It provides convenient, accessible education for adults, and social, cultural, recreational, and human services for the community.

It is a three-generation center.

Community educators recognize that education also takes place out-

side the school, in homes, cultural facilities, businesses and factories, shopping areas, parks, and streets. Learning is community-wide as well as life-long.

2. **Everyone has a stake in education, and citizens have a right and a responsibility to be involved in their community schools.** By encouraging all citizens to be involved, by forming partnerships with business, and by improving communication with parents, education gains broad community support.

3. **Schools should be open to the community, and services should be expanded to serve the entire community; at the same time, community resources should be used by the school.**

The goal of community education is to create, not just a good school, but a good community, to generate a better life for everyone through education.

The community school is a resource center for community services, either providing them directly or referring citizens to other agencies. Thus, liaison with many other community organizations and agencies is both inevitable and appropriate.

THE COST

Obviously, broadened services for more hours on more days mean increased costs for lighting, heating, cooling, salaries, equipment, and insurance. But the idea is to focus community services at one convenient center, serving a large number of people more efficiently. The cost per person served should be lower, since facilities formerly underutilized would be used more efficiently.

Everyone knows that high-quality

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buildings and equipment are more economical in the long run. Better walls, windows, floors, roofs, hardware, lighting, and airconditioning equipment pay off in reduced life-cycle costs.

The Governors' Task Force on School Facilities asked not only whether we should rebuild what we have now, but "just what our next generation of school buildings should look like . . . and what design considerations (would) make buildings more efficient and suitable to community use?"

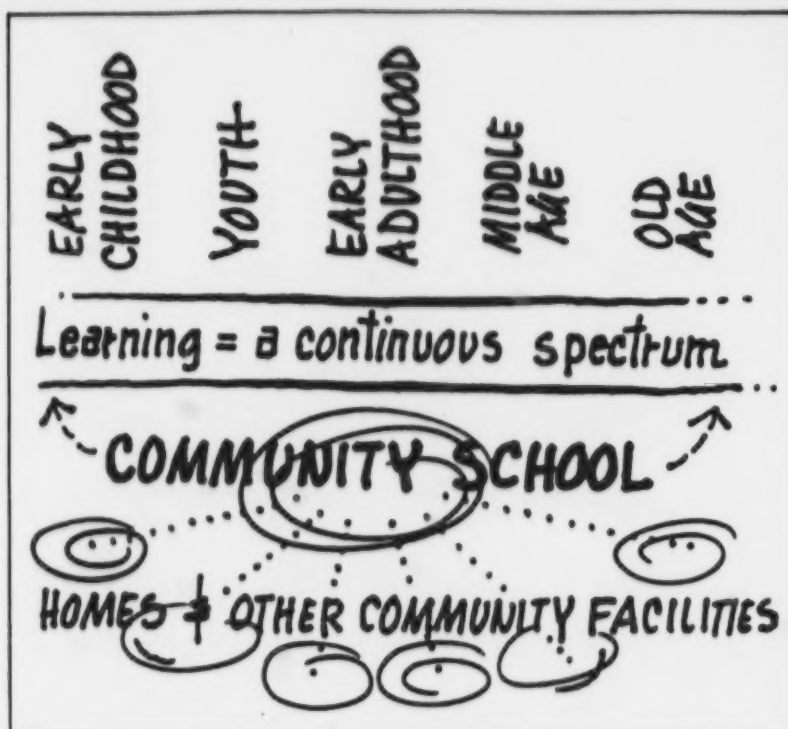
In some instances, a fine new building can replace two or three underused and costly-to-operate schools, with substantial operating savings. In other instances, existing buildings can be restored and adapted to new needs if the buildings are structurally sound, safe, flexible, energy-efficient, well-located, and handsome. (Those requirements would, of course, rule out many existing buildings, old and new.)

Energy efficiency alone is often reason enough for new construction. An energy hog can consume enough energy dollars in 10 years to finance an appropriate new building.

Flexibility is an important watchword. Tomorrow's school must have a high degree of adaptability if it is to change in future years to meet changing needs. Schools can learn from the modern office building, which is a model for adaptable space. Tenants change frequently; each tenant rearranges the space to meet its own needs; tenants use a broad variety of business machines that must be accommodated without major building alterations. Tomorrow's school will offer similarly flexible space.

COMPONENTS OF THE COMMUNITY SCHOOL OF THE FUTURE

The instructional media center, resource center, or library, by whatever name, will continue to be the heart of the school, conveniently located for both school and community use. It will be open more hours and offer more extensive services (more computers, copying machines, audio-visual equipment, etc.). It will have electronic links to business, homes, and other libraries. It will make sense in small communities to combine the



school and community library. In larger communities, a variety of libraries will be electronically linked.

School design must provide space that is flexible enough to adapt to changing educational philosophy, and changing teaching and learning methods. The "classroom for 30" has survived 25 years of attack, but it may be time to take another look at that idea, to seek more variety, with both large-group spaces and more individual study spaces.

New emphasis on science, mathematics, and technology has led inevitably to new building and equipment concepts. Fortunately, computers are easily accommodated, as every classroom and lab will have computer equipment.

Some vocational-technical equipment is now highly specialized and expensive, so specialized shops and labs will be concentrated at career centers serving satellite community schools. Changes in program offerings and in equipment will occur rapidly, so a high degree of flexibility will be essential. Shared-time facilities will be appropriate. Secondary-school students will use specialized shops in the morning and early afternoons, and adults will use the same expensive equipment in late afternoons and evenings. Special proj-

ects will be scheduled on the week-ends.

The big auditorium has often been a community facility, but too often the design has been compromised by trying to make it too much of a multipurpose facility. By combining school and community resources, a better and more varied cluster of facilities will be possible. A theater needs a big stage and small "house" (seating area), while an auditorium needs a large house.

With more emphasis on "lifetime music," music spaces will also change. More individual practice rooms will be needed, and the orchestra room will enjoy new prominence as the orchestra achieves parity with the band.

A community art center at the school will benefit everyone. Painting and drawing studios, and textile, sculpture, and ceramics labs will serve a broad spectrum of students and adults; local artists will be actively involved.

Teachers have often been ill-housed at school. The community school of the future will recognize the need for quality office and work-space.

A key question of the future is whether the local park district goes it alone or cooperates with the school

A Rich Mix of Activities in the Community School Of the Future

EDUCATION

- Traditional K-12 programs
- Early childhood and parent education programs
- Adult education, including literacy, high school completion, vocational education, personal enrichment, and college-credit courses
- Special education for all ages
- Library, computer, and media services

RECREATION

- Athletics and physical education
- Lifetime sports

CULTURAL ENRICHMENT

- Visual arts studios and exhibits
- Crafts
- Music
- Theater
- Historic museum
- Meeting and conference spaces

HUMAN SERVICES

- Child care
- Health services
- Social services
- Senior citizens' programs
- School-business partnership activities

system in providing athletic and recreation services. The community school would seem to be the best place for many community-use facilities, because they can be shared easily by students and adults. A swimming pool designed for both school and community use would include a club-like sundeck and sliding doors to open the pool to summer breezes.

The field house will be rediscovered in tomorrow's community school. It will be a flexible shelter for track, basketball, volleyball, tennis, and for softball and football practice. There will also be facilities for walking and running, cycling, tennis, golf, swimming, exercise, weightlifting, dance, and aerobics.

The school's food preparation area will be adaptable to adult dining occasions. Food preparation and dining spaces will be related to community meeting and conference space.

Architecturally interesting spaces will provide for students' informal associations. The noisy, narrow, low-ceilinged corridor will be partially replaced by "great spaces"—student

streets, malls, commons, or atriums. The key ingredients will be imagination and good design.

Flexible office space will be needed for both school administration and community agencies. Adult education, human services, day care, senior citizen activities, and other programs will require administrative space.

More evening use will mean better lighting for building entrances, walks, parking lots, and drives—and more thoughtful security. Summer use will mean more airconditioning, gardens, horticulture instruction, bicycle paths, picnic areas, outdoor classrooms, an outdoor swimming pool, and a rich mix of playfields serving both students and adults.

The trend is already toward larger sites. With increased community facilities, 60- and 80-acre sites will not be unusual. Part of this will have to do with environmental concerns: the community school will be expected to do its part in saving forested areas, hillsides, and wetlands, as park districts have long been expected to do.

THE MULTI-LOCATIONAL SCHOOL SYSTEM

We may see the development of a hub-and-satellite school system, with highly specialized components at a large central hub and smaller neighborhood community schools around it. The hub would include a central library, media center, TV station, computer center, large auditorium, theater, and art museum, with equipment that is too expensive to duplicate at every school.

Each satellite campus (say, for 1,000 students) would have classrooms, labs, studios, physical education and recreation facilities, a community and school library, and day-care, senior-citizen, and other human-service facilities. The satellite would be linked to the hub by both road and electronics. A student might do most of his work at the satellite but go to the hub on certain afternoons. The idea of a school with "branches" is appropriate in an age in which banks, stores, libraries, and universities have all embraced the branch concept.

GOOD SCHOOLS ARE GOOD NEIGHBORS

Our next generation of school buildings should certainly not look like many of the buildings of the booming 1960s—boxy, flat, cheap, with either too many or too few windows, and looking very much alike, regardless of location. Community schools of the future should learn from their communities, respecting and using appropriate local customs, materials, and forms. Regional architecture in the context of the neighborhood should be a goal. Inside, new kinds of spaces will satisfy both the needs of practical programs and the needs of the spirit. Educators will recognize good design as a good investment for people, just as businessmen recognize good architecture as a good investment for business.

Community schools will be used more efficiently, and with more joy. They will be constructed of quality materials, providing genuine long-range economy. They will provide flexible space to meet both today's changed needs and the unknown needs of tomorrow. □

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Parent Involvement: State Education Agencies Should Lead the Way

Words about the importance of parent involvement are meaningless without financial and technical support

By Joyce L. Epstein

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An earlier version of this paper was presented at a meeting on Community Education Leadership and State Education Agencies sponsored by the Council of Chief State School Officers in San Diego on January 16, 1987.

PARENT INVOLVEMENT¹ is on everyone's list of practices to make schools more effective, to help families create more positive learning environments, to reduce the risk of student failure, and to increase student success. State education agencies have offered mainly symbolic, verbal support for the importance of parent involvement, but little financial support for staff and programs needed to improve parent understanding, teacher practices, and family and school connections. This article summarizes the Hopkins research and the implications of the results for action needed at the state

level to improve school and community programs of parent involvement.

RESEARCH RESULTS FROM THE HOPKINS STUDY

Over the past few years we have been studying teachers' techniques for involving parents in their children's education. We surveyed 3,700 teachers in grades 1, 3, and 5 and their 600 principals in 16 school districts in Maryland. We also interviewed 82 teachers who differed in their use of parent involvement in learning activities at home, and surveyed more than 1,200 parents of children in these teachers' classrooms for their experiences with and reactions to teachers' requests for parent involvement. We obtained information about the achievement, report card grades, and school behaviors of more than 2,000 students in these teachers' classrooms, and we surveyed more than 600 fifth-grade students about their perceptions of parent involvement in learning activities at home. With these data we are able to link the teachers' practices, parents' responses, and students' outcomes to study the effects of teacher parent-involvement practices on parents and students. Strong support from the Maryland State Department of Education was very important for obtaining the cooperation of superintendents, principals, teachers, and parents in the study.

From the research we learned, for example, that teachers who were leaders in the use of parent involvement in learning activities at home were able to involve parents with all educational backgrounds, not just well-educated parents. When parents

were involved by teachers in learning activities at home, they reported that they *knew more* about their children's instructional programs; *received many ideas* from the teacher about how to help at home; believed that the teacher *wanted them to help* their children; and *rated the teacher higher* in interpersonal skills and overall teaching ability.

Teachers tended to involve the parents in *reading activities* at home with their children, more than in other school subjects. Parents confirmed that they helped their children most in reading-related activities. And, our research showed, *students gained more in reading achievement* from fall to spring if their teachers frequently involved parents. Fifth-grade students whose teachers used frequent parent involvement had more *positive attitudes about school* and *did more homework* on weekends.

The connections between teacher practices, parent responses, and student achievement in reading suggest that if teachers helped parents understand how to help their children at home in specific school subjects, more children would improve their mastery of basic skills in those subjects. This is especially important for students who need extra learning time at home to practice or review basic skills.

Teacher leadership—not parent education or marital status—made the difference in whether parents improved their knowledge about the school and about helping their children, and whether the children improved their reading scores. Because teachers and administrators play the key roles in including or excluding parents from their children's education, state policies and actions should be directed to building teachers' and administrators' capabilities to conduct parent-involvement practices that make a difference for student success in class.

TYPES OF INVOLVEMENT

Our research and other studies point to five types of parent involvement that contribute to a comprehensive program of school and family partnerships.

1. *The basic obligations of parents* include providing for children's health and safety, child-rearing to prepare children for school,

"Because teachers and administrators play the key roles in including or excluding parents from their children's education, state policies and actions should be directed to building teachers' and administrators' capabilities to conduct parent-involvement practices that make a difference for student success in class."

and building *positive home conditions* that support school learning and behavior. Schools vary in how actively they assist parents with social services or provide programs to build positive parenting skills.

2. *The basic obligations of schools* include communicating with parents about school programs and children's progress. Schools vary the form and frequency of communications and greatly affect whether the information sent home can be understood and used by all parents.
3. *Parent involvement at school* includes parent volunteers who assist teachers, administrators, and children in classrooms or in other areas of the school. It also refers to parents who come to school to support student performances, sports, or other events, or to attend workshops or other programs for their own education or training. Schools vary in the extent to which they successfully recruit and maintain the involvement of many differ-

ent parents at the school building.

4. *Parent involvement in learning activities at home* includes requests and instructions from teachers for parents to assist their own children at home on learning activities that are coordinated with the children's classwork. Schools and teachers within schools vary in how frequently and clearly they request parent-child interaction on homework and other learning activities at home.
5. *Parent involvement in governance and advocacy* includes parents in decision-making roles in the PTA/PTO, advisory councils, or other committees or groups at the school, district, or state level. It also refers to parents as activists in independent advocacy groups in the community. Schools vary in the extent to which parents have real influence in school policies, programs, and decision-making processes.

Each type is an important part of a comprehensive program of parent involvement at all levels of schooling. However, it should be clear that in most schools most parents cannot come to the school building to assist teachers or attend meetings during the school day. Each type of parent involvement yields different results for different groups. For example, parent involvement at school helps teachers improve classroom management and encourages teachers to use other types of parent involvement. In comparison, parent involvement in learning activities at home helps parents understand the subjects the child is studying and helps students practice needed skills. Our research suggests that teachers' practices to involve parents in their children's learning activities at home have the greatest chance to improve all parents' understanding of their children's instructional programs and the greatest potential for increasing student success and reducing failure.

STATE SUPPORT OF PARENT INVOLVEMENT

State policies, bylaws, guidelines, and funds for educational programs strongly influence or determine district and school leadership, teaching practice, and community support.

These policies can either recognize or ignore the connections between the simultaneous educational and socializing institutions in a child's life—the family and the school.

State programs that address the needs of all families for useful information and involvement in their children's education give something back to families and citizens for their education tax dollars. Parent involvement in a sequential, continuing program from kindergarten to grade 12 may be a key factor in preventing or reducing school failure. The quality of family and school connections all through school can dramatically affect the students' and the families' futures, and determine whether they become dependent on or contribute to the state. Programs through the high-school grades that support parent involvement and parent-child interaction may be the most beneficial investments we can make at the state level to prevent more costly social and educational problems.

PARENT INVOLVEMENT AND CHOICE

The National Governors' Association Task Force on Parent Involvement and Choice focused a great deal of attention on the pros and cons of increasing parents' choices of the schools their children attend, especially choices among public schools with different programs. But, after the choice of schools is made (and even when there is no choice and children attend their neighborhood schools), parents and teachers must make choices about whether to emphasize parent involvement. Important family and school connections start with the choice of or assignment to schools and continue when the teachers, parents, and students interact on a regular basis.

Students must make many decisions each year. Their choices—of programs, courses, activities, opportunities, special services—affect their futures. Parents need to be involved as knowledgeable partners in these decisions. They must understand how the school system works, the goals and programs of the schools their children attend, the options and consequences of decisions that concern their children each school year, the course objectives and requirements for passing, the ways teachers define and grade progress and success, the programs that are available

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to their children before and after school, on weekends, and on Saturdays, and how to become part of those programs.

Some parents have the information and experience they need to help their children through the elementary and secondary grades and into post-secondary schooling or work. Other parents—most parents—need and want information and guidance from teachers and administrators about how to help their children in key decisions and in learning activities. This is true in all schools—public or private, chosen or assigned—and at all levels of schooling—elementary, middle or junior high, and high school. There is much discussion about parent involvement in the choice of schools for their children but little about the importance of parent involvement after the choice of schools is made. This type of parent involvement requires special attention from state policy makers.

STATE LEADERSHIP FOR PARENT INVOLVEMENT

Research findings suggest that the following policies and actions at the state level will improve family-school connections and parent-involvement programs.

1. Write a policy that outlines and discusses the state's commitment to parent involvement. An official written policy that specifies the state's perspectives, services, requirements, and expectations concerning parent involvement is the first step toward a viable parent-involvement program. The state policy should recognize the importance of a comprehensive program of parent involvement—based on the five types of parent involvement—in every district and school to benefit all families and children. It is not enough to mandate only parent advisory councils, or only parent-teacher organizations, or only parent volunteers at the school building. These activities involve only a small proportion of the parents and have little impact on the abilities of all parents to help or monitor their children through the school years. Other types of involvement must be recognized, including effective conferences with teachers for all parents, and parent involvement in learning activities at home. All children may benefit from parents who are knowledgeable about school programs and school decisions.

An official policy on parent involvement shows that the state will support activities in its districts and schools to improve the parent involvement practices of teachers, administrators, community educators, and others to help parents understand and exercise their role in their children's education.

2. Establish a clearinghouse, library, and dissemination office for parent-involvement practices and research. This may be housed at the state department of education, one or more centrally located school districts, a cooperating college or university, a community agency, or in mobile units for use by teachers, parents, and others. Parent-involvement programs, teachers' practices for involving parents, school surveys of parents, handbooks and other forms for communication with parents, child-development information and activities, related research, community education programs, research studies, and other information and

resources can be shared widely and easily only when there is a central location for collecting and disseminating the information.

Clearinghouse and dissemination services for parent involvement could help school districts and individual school staffs understand and build on the work of others to avoid duplication of invention and effort. Moreover, a great deal of time and money would be saved through the efficient collection and distribution of information to encourage program development in many districts, schools, and communities.

At least one full-time professional should be added or reassigned in each state to coordinate a clearinghouse and to provide leadership to school districts and schools. Additional full-time staff in large school districts and part-time or full-time staff in small districts are needed to increase the probability of success of parent-involvement programs in all schools.

3. Support state requirements for teaching credentials to include credits for completing at least one comprehensive course in family and school connections and the use of parent involvement in teaching. Currently, teachers in training are not

required to have any knowledge or expertise in understanding families or communities, or ways to involve parents as partners with the schools in their children's education. Yet, *every teacher* entering a classroom must deal *every day* with children, their families, family conditions, and the connections between schools and homes. Teachers' abilities to master and use home and school connections are as critical to their success as their abilities to teach reading or manage classrooms. The state of Washington has already moved in this direction with specific credit requirements, and teacher educators in other states are pressing for similar policies at the state level.

4. Support state colleges and universities in the development of comprehensive preservice and inservice teacher and administrator training courses for improving practices of parent involvement. In addition to establishing requirements for credits, courses in parent-involvement research and practice must be developed to provide the training needed by teachers. Only between 4 and 15 percent of the teachers in our and others' surveys had formal classes or courses in parent involvement. This means that between 85

and 96 percent of the teachers received no preparation to use parent involvement productively. Coherent courses need to be designed, or specific modules on different types of parent involvement and their effects need to be added to basic courses in teacher education, administrator training, effective school organization, community education, principal leadership centers, and teacher inservice programs.

Similarly, community educators need courses that would help them specialize in parent involvement and school, family, and community connections. Community educators need to understand schools, learning, and the potentials of parent assistance, just as they study community structures, decision making, and conflict resolution. The additional courses could prepare them to work with teachers, coordinate parent assistance with student need, and develop school and work connections with the business community.

Teachers and administrators need ongoing experiences that will help them understand and use parent involvement effectively. Districts could begin to develop and share useful, transferable inservice programs on different types of parent involve-

ment, implementation strategies, evaluation procedures, and effects. Financial support in state and district budgets is needed for such inservice training for beginning and experienced teachers, administrators, community educators, and parents.

State grants and other awards for developing and offering courses and components of courses for undergraduate preservice, graduate, and inservice training could establish the leadership needed in state universities and colleges to advise and assist both beginning and experienced teachers and administrators.

5. **Support master teacher, mentor or lead teacher, or other career ladder programs to build a cadre of specialists in the use of parent involvement.** Many states are supporting or considering plans to improve the status of teachers. These programs for professional development often encourage and enable teachers to become subject-matter specialists to assist other teachers. It would be appropriate and beneficial to promote teachers who are parent-involvement specialists. At least one expert teacher is needed in each school to assist and train other teachers in the research, practices, materials development, and evaluation of parent involvement across the school grades. These master or lead teachers could be important connectors, too, to community education specialists, and through them to community agencies, businesses, and groups of citizens who can be important school resources.

Teacher specialists in parent involvement should receive financial compensation for extra responsibilities, perquisites such as extra planning time, or other recognition for their leadership. Parent involvement should be one of the recognized specialties to build leadership roles for teachers.

6. **Establish funding and recognition programs, including small grants, for school districts and teacher-administrator-parent teams in individual schools to develop and evaluate comprehensive programs in parent involvement over several years.** The most promising parent-involvement programs will be developed at the school level. Teachers should be recognized and rewarded for working with other teachers, community educators, parents, and

others to improve their practices to assist parents' knowledge and skills in ways that help teachers and students reach important school goals. A school-based management model is critical in the area of parent involvement, because schools start with different histories in programs that involve parents.

Along with state funding for some common programs and services across districts, funds are needed for small grants to local schools to encourage them to customize programs and practices for their local popula-

tions and materials, so they can get the information they need to understand the schools and encourage their children. *Parents of older children* need special assistance to understand their continuing role in their children's education. Although the forms of communication and activities for parent involvement will change at different grade levels, all parents of children from pre-kindergarten through grade 12 need information and opportunities to build a repertory of family skills, to understand their children's schools, and to assist

"Funds spent on parent-involvement programs are likely to be returned to the state in the form of better-informed parents, more successful students, more effective teachers, fewer student failures, and fewer demands on other state and local resources for expensive social services when the students are adolescents and young adults."

tions and to evaluate and improve their efforts. These funds could be used to provide teachers with planning periods, paid sabbaticals, and summer salaries to develop and adapt useful processes and materials for increasing and improving all types of parent involvement in their schools. Small grants can invigorate every school by supporting creative program development.

7. **Support the development of programs for special populations of parents.** Schools need additional financial assistance to develop their capabilities and to produce materials to involve all parents in their children's education, including those who require special services. *Teenaged parents* of infants and toddlers quickly become the young parents of school-aged children and may need especially clear and coordinated guidance and support in how to help their children in learning activities at home. *Non-English-speaking parents* need translators or translated communications of home-learning materials. *Parents with low reading ability* need differently designed communi-

their children's skills and school decisions.

Each school may have different special groups, but some processes and practices can be shared to meet the needs of similar populations. State funding is required to reach these special populations—funding for program development, teacher training, community linkages, and parent involvement. These families are at risk of misunderstanding school policies and programs. They have proportionately more children who are at risk of failing and dropping out. The parent-involvement component for these groups is essential for creating positive support structures for students.

8. **Recognize and apply the work of community educators in programs to increase parent involvement in their children's education.** Community educators could play active, focused roles in improving parent and community involvement in students' education to assist teachers, parents, and students to improve K-12 programs. The state's support of community educators could promote a

more focused set of activities for these potentially important "connectors" between schools and families. In the past, community education has been loosely defined to identify the limits and potentials of community educators to meet local needs. Now it may be important to focus on a few common problems to build a repository of skills among community educators that can be shared to strengthen communities across the state.

Two common problems that would benefit from the leadership and energies of community educators are increasing parent involvement and reducing student failure. These topics are linked to each other, and these topics are linked to several traditional interests of community educators, such as increasing adult literacy and using school facilities after the school day for academic and recreational activities. Community educators could help teachers make contact with hard-to-reach parents and children who are at risk of failing. This could be accomplished in coordination with the schools and teachers in the school and in other community locations before school, after school, on weekends, and during vacations all across the school grades.

9. Encourage and recognize businesses that permit their employees to become involved in their children's education in order to strengthen the schools, the community, and the citizens and workers of the future. The top education leaders in each state need to work with state legislatures to obtain tax incentives, tax credits, preferred status, or other types of recognition for businesses that:

- Permit and encourage all parent employees to take up to a half

day once or twice a year to attend parent-teacher conferences on company time, flex time, or other beneficial arrangements.

- Permit and encourage parent employees and other employees to contribute time to volunteer in the schools.
- Encourage parents to use business holidays that are different from school holidays to visit the schools.
- Establish libraries at businesses and industries to provide information to parents about their children's development through childhood and adolescence, their continuing role in their children's education, and appropriate enrichment and learning activities for children at all grade levels.
- Establish and support high quality services at the work place or under the auspices of the business to provide day care, after-school, holiday and vacation programs, substitute-parent care during children's minor illnesses, and other education programs for employees' children.
- Award small grants to schools and community agencies to improve parent-involvement practices.

State education leaders need to develop incentives and recognition programs to encourage businesses to work with the schools, improve the parenting skills of employees, and improve the contributions of businesses to the success of students as an investment in the community.

10. Support research and evaluation on parent-involvement processes and effects in connection with pilot programs and small grants to schools. Parent-involvement and community education projects will remain "frills" unless there is clear accountability. Data need to be collected, analyzed, and reported clearly to show policy makers, citizens, and educators whether or not these programs are important to the parents, students, schools, and communities. Data on current conditions, including teachers' practices and levels of parent involvement, are needed to define the starting points and needed programs in each school. Data are needed on the success of implementation procedures of new approaches

and on the expected and unexpected results of the programs and practices. Evaluations are needed to know whether to continue or change practices and whether programs can be used beneficially in other schools and districts. Each district—indeed, each school—needs to choose appropriate and useful ways to test and evaluate alternative practices of parent involvement to see which approaches work for that district and its populations of families, at which grade levels, and in which subjects. State departments of education can exercise leadership by requiring evaluation and allocating funds for it.

DISCUSSION

The 10 state policies and actions briefly outlined here require time, money, commitment, and leadership. State departments of education hold one important key to successful and lasting parent involvement in their budget line-items that could be targeted to provide staff positions, teacher training, small grants, and evaluation studies in parent involvement. Funding for needed staff, training, and program development should be assured for a reasonable period of time (at least five years) in order to develop useful practices and build the capabilities of teachers and administrators. Funds spent on parent-involvement programs are likely to be returned to the state in the form of better-informed parents, more successful students, more effective teachers, fewer student failures, and fewer demands on other state and local resources for expensive social services when the students are adolescents and young adults.

Parent involvement is not the parents' responsibility alone. Nor is it the schools' or teachers' or community educators' responsibility alone. All groups need to work together for a sustained period of time to develop programs that will increase parents' understanding of the schools and their ability to assist their children, and that will promote student success and reduce failure at every grade level.

Parent involvement is everybody's job but nobody's job until a structure is put in place to support it. Without financial and technical support from state education agencies, words about the importance of parent involvement are meaningless. □

The Next Educational Reform

FAMILY SUPPORT SYSTEMS

By William H. Denton

THE EIGHTIES, as has often been observed in recent commentary, have been the decade of the school report and school reform, as states and many localities have introduced school improvement programs. Until recently, these reforms have largely bypassed the problems of disadvantaged children and adults.

A second generation of reform proposals has now targeted two related issues of serious import for the education of disadvantaged populations. The first is the persistent school dropout rate. The second is the declining level of adult literacy. The purpose of this study is to review connections between these two issues and to determine the implications of these connections for dropout prevention and literacy education programs.

A GROWING PROBLEM

High school completion rates have shown a steady upward trend since 1900, when about 5 percent of the age group completed high school. The rate continued to rise until 1967-68, when it stood at 77 percent. Since then, the completion rate has dropped, and the rate of early school leaving has risen (Wehlege and Rutter 1985). Today, about 36 percent of adults have not completed high school; in 1987, their ranks were swollen by nearly 1 million American youth who left school without graduating. Some observers believe that recent state educational reforms may be counterproductive for some students, producing more, not fewer,

dropouts (McDill and others 1986). These projections are buttressed by several recent reports on at-risk populations. A survey of 54 state reform commissions by MDC, Inc. (1985) concluded that the needs of at-risk youth had received scant regard. Exacerbating this aspect of the issue are major demographic changes that include a rapid expansion of the number of minority youth and children who are growing up in poverty; projections are that dropout trends are likely to worsen in the near to mid-term future.

A second issue is that adult literacy rates are also reported by some analysts to be worsening. Estimates of the number of functionally illiterate adults in the U.S. range from 46 to 84 million. Kozol (1985) claims the ac-

tual number to approximate 60 million. Of that group, perhaps 42 percent lack basic reading and oral communication skills; the remainder may have marginal literacy skills. According to Harman (1987), there is an important association between high school completion and literacy levels. Seventy percent of illiterates failed to graduate from high school, but it is important to note that in today's increasingly technological society, high school graduation may not be enough. Kozol (1985) claims that 15 percent of urban high school graduates have less than sixth grade competence; according to Venezky and others (1987), 12.6 percent of all American 17-year-olds enrolled in school are functionally illiterate.

CAUSES AND CONDITIONING FACTORS

There are striking parallels between the research findings on these two complicated issues. Researchers and commentators on both sides of these issues have identified disadvantaged and minority groups as experiencing high dropout rates and functional illiteracy. Furthermore, they have intimated an intergenerational connection between these two phenomena.

There are strong ethnic associations with dropping out and illiteracy. A General Accounting Office (GAO) report (1986) cites Bureau of Labor Statistics and U.S. Department of Education statistics that show higher dropout rates for minorities: 13 percent of white youth, 17 percent of black youth, and 19 percent of His-

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This article is a product of a series of occasional policy seminars held under Mr. Denton's direction at Atlanta University over the past several years under the general title of Georgia's Forgotten Generations. Seminar reports on school dropouts, adult illiteracy, and children at risk are available from the author at Atlanta University, 223 James P. Brawley Drive SW, Atlanta, GA 30314-4391.

panic youth drop out. The National Assessment of Educational Progress (Kirsch and Jungeblut 1985) surveyed 3,600 young adults, aged 21 to 25, to assess their literacy skills. The study found black and Hispanic young adults' performance significantly below that of white young adults on all phases of the assessment. Sixty-seven percent of whites, 52 percent of Hispanics, and 31 percent of blacks tested read as well as or better than 11th graders on the same test. In the sample, twice as many black and Hispanic as white young adults had dropped out of high school.

Socioeconomic status is a variable strongly associated with both outcomes. High school sophomores of lower class status drop out at rates three times that of higher status youth (U.S. Department of Education 1985). Fifty percent of heads of poverty households are functionally illiterate. The Committee for Economic Development (1987) suggests intercorrelational relationships between poverty, ethnic status, and educational outcomes. Black children are three times as likely to come from poor families as white children. It is important to note the when studies are controlled for income status, little ethnic difference in achievement or attainment is found.

Among the causes and conditions affecting dropout and illiteracy rates, evidence of intergenerational linkages may be most useful in the development of policies and programs. There is a substantial tradition of research on the effects of home environment and family status on educational achievement. Recently, Borus and Carpenter (1984) found that the offspring of fathers who had dropped out were three times as likely to drop out as those whose fathers were college graduates, and the William T. Grant Foundation's Commission on Work, Family and Citizenship (*The Forgotten Half* 1988) reported a relationship between a mother's grade attainment and children's achievement. The National Assessment of Educational Progress (NAEP) study cited above (Kirsch and Jungeblut 1986) found parental education and occupation along with access to literary materials in the home to be significant conditioning factors affecting young adults' educational levels. The authors concluded:

A second generation of reform proposals is now targeting two issues: the persistent school dropout rate and a declining level of adult literacy. Evidence of an intergenerational link between these two issues points to the need for new policies and programs that recognize them as two parts of the same problem.

The results of these relational analyses suggest, among other things, that the most promising intervention strategies are likely to be those that take into account the intergenerational aspects of poor academic performance—parental education, economic situation, and early home experiences are all likely to affect the individual's system of values and knowledge. (58)

Literacy and functional illiteracy, in the view of Harman (1987), are associated with school dropouts, ethnic groups, geographic regions with high unemployment rates, and the economically disadvantaged. Literacy levels, though associated with these conditions, are "neither the cause nor result of these conditions, but merely one of their manifestations" (42). In Harman's analysis, illiteracy is situational and associated with groups that place little value on literacy as a life skill.

CURRENT REFORM PROPOSALS

The literature is replete with recommendations for solving the dropout problem, although it is the opinion of GAO (1986) that "it is not generally known 'what works' in terms of specific interventions to prevent youth from dropping out of school or encouraging their re-entry" (34). Citing several statistical analyses, the Institute for Educational Leadership (Hahn and Danzberger 1987) targets family, ethnic, and socioeconomic

status as key variables affecting dropout rates. The authors offer a comprehensive school-based model to reduce the number of dropouts. Early identification and remediation are proposed, along with a wide variety of alternative strategies at the high school level: remediation, school-business collaboration, parent involvement, and school-based governance for heightened accountability. A plan to induce the recovery of dropouts is also presented. Essential elements for re-entry programs include remediation, job-skill training, and work as part of a comprehensive integrated educational approach. Support services, including social and vocational counseling, are recommended for at-risk students at all levels.

The 1987 report of the Committee for Economic Development (CED) drew a profile of educational disadvantage that included poverty, ethnicity, and growing up in a single-parent household. The CED report on at-risk populations is perhaps the most comprehensive reviewed for this study. It calls for the restructuring of school operations and environmental intervention. The report advocates community schools that involve parents, community members, and businesses in programs tailored to meet the needs of disadvantaged children and youths. At the high school level, alternative and recovery programs are recommended. Environmental intervention would be achieved through programs for the physical and psychological development of infants, reduction of teen pregnancy, parenting education, pre-schools, day care, and other support systems for working families. The CED report also calls for new levels of commitment to school-business partnership, including direct funding of alternative educational programs by businesses.

One of the most thorough recent studies on illiteracy is that of Kozol (1985). Kozol claims that there have been only two effective strategies in this century for ameliorating literacy crises such as the current one in America. Both have been used in less-developed countries. The first is a national campaign organized centrally by government leaders. The second involves grassroots organizations. Kozol proposes a community-based campaign supported by mas-

sive federal investment along the lines of New Deal efforts to combat economic depression in the 1930s.

Harman (1987) believes that schools can do little to generate support for literacy in illiterate communities. In such communities, families may support school attendance but may not value literacy or support the curriculum. Because of the crucial role of the family in rewarding literacy, intervention strategies for children must alter family attitudes toward the importance of literacy skills. The workplace may also support literacy by signaling its importance to work as well as to paper credentials. Harman concludes that literacy programs must be community-based and situation-specific; they must be associated with lifelong learning opportunities through adult education programs and workplace education; and they must be coordinated with other development activities, with special attention to family-centered education.

SUMMARY OF FINDINGS

Research and policy literature offers a variety of explanations for early school-leaving and adult illiteracy. Individual, familial, institutional, and societal factors are considered, along with such demographic variables as ethnic status, socioeconomic status, and parental education, all of which are strongly predictive of dropout rates and adult literacy levels. These predictive conditions are best understood in relation to broader social conditions that affect particular groups and even whole communities,

especially those communities in which literacy is perceived to have little functional value in enhancing life opportunities.

A NEW MODEL FOR EDUCATION

Unacceptably high rates of dropping out and functional illiteracy among adults are dramatic symptoms of a multifaceted social and educational crisis that touches every aspect of American society. A plethora of proposals has come from researchers, policy analysts, and practitioners to resolve one or another of these symptoms without acknowledgement that they are simply different aspects of a single, unitary problem—the persistence of long-term educational deprivation and impoverishment of growing numbers of poor families.

In the studies cited above, dropping out of school and adult illiteracy have been demonstrated clearly to be connected and systemically interdependent, but they cannot be successfully addressed as long as educators approach the issues in a fragmentary way. The overriding problem can be resolved only if the connectedness of the issues is recognized. To change the situation, it is absolutely critical that we shift to new, holistic models of education. Such models are found in systems-thinking about educational processes and are to be derived broadly from general systems theory, which is a method, or set of methods, for analyzing complex problems; the method is often referred to as systems analysis (Allen 1978). In applying systems analysis to an understanding of social systems and their

dysfunctionalities, several key principles stand out:

- Systemic problems must be analyzed holistically and as unitary processes.
- Social systems are sets of inter-related units sharing a common function or united to achieve a common purpose.
- Systems are linked to one another through mutual interdependence.
- Community systems are linked hierarchically in ever-increasing levels of complexity to the extra-community systems that make up the external environment of the local community.

Taken together, these principles mean that the totality of the community and the interdependence of community systems must be considered in planning successful interventions into community problems of any level of magnitude.

HOLISTIC ANALYSIS

Holistic thinking about the dimensions of educational disadvantage leads invariably to a reconceptualization of educational processes. It demands, first, that we accept the continuity between youth and adult education; we cannot continue to follow the conventional thinking that views the education system as a series of building blocks, with adult education superimposed upon childhood and youth curricula. This conventional view is enhanced by the almost universal tendency to mandate responsibility for education, as well as for other public services, to different and increasingly specialized agencies. We must become better at cutting across separate organizational arrangements to provide concentrated, coordinated, long-term assistance where it's needed. Furthermore, in contemporary education, individual development is too often disassociated from the family, and the larger network of socialization influences is minimized in planning educational interventions. This tendency to disassociate individuals from their environments leads to a related conceptual problem: the frequent confusion between individual and social causes of behavior. Our interventions tend to focus on the learning deficits of individuals rather than on the institutional or structural defects of their environments.

MODEL OF HOLISTIC LEARNING SYSTEMS

BACKGROUND FACTORS	INTERNAL INFLUENCES	CONSEQUENCES
Family characteristics	Parental education	Educational achievement and attainment
Home environment	Literacy instruction	Systems improvements
Community organization	Job training and development	Economic well-being
Community resources	Intersystem coordination	Community integration
Social policy	Targeted planning and advocacy	Empowerment of mediating institutions
Leadership	Self-help networking Political decentralization	Societal guidance and learning

Most of the proposals discussed above admit the links between individual, familial, and structural etiologies of behavior, but the treatments proposed are conventional and fragmentary. Some models for dropout prevention advocate family-centered social and health services, which are clearly needed, but none speaks to the educational deficiencies of parents or to such social dysfunctions as endemic unemployment, ethnic discrimination, and economic deprivation—conditions all linked with literacy levels and school attainment.

INTERVENING IN THE FAMILY SYSTEM

Sound educational policy and practice for disadvantaged youth and adults require seeing the family system as the focal point for educational interventions. Disadvantaged youth are dropping out of school in record numbers; most of them are deficient in basic skills, marginally literate, and virtually unemployable. They are often products of a family cycle of illiteracy and dependency. If these youth are to be salvaged and their parents engaged in productive activity, the literacy levels and basic maintenance functions of the entire family must be enhanced.

One way to enhance family maintenance functions is to improve the home learning environment. This is often attempted through parent education programs conducted through schools. Such programs generally are designed to help parents become aware and supportive of good homework practices for their children. More effective programs seek to help parents address child development through knowledge of proper nurturing practices, adequate nutrition, and appropriate health care. An excellent approach for disseminating this kind of information is the parent-child center, which teaches effective parenting skills while providing developmental support for preschoolers.

Both systems analysis and research show, however, that parenting education is a necessarily limited answer to the problems of educational disadvantage. If the level of cultural literacy in the home is low, parents are unlikely to motivate their children to place high priority on reading and other literacy skills and will be un-

Some models for dropout prevention advocate family-centered social and health services, which are clearly needed, but none speaks to the educational deficiencies of parents or to such social dysfunctions as endemic unemployment, ethnic discrimination, and economic deprivation—conditions all linked with literacy levels and school attainment.

able to assist them with the most rudimentary assignments. This means that parents of disadvantaged and at-risk youngsters must be targeted for literacy and high school equivalency programs as one element of a comprehensive lifelong learning program for everyone in the community.

Just as important, the family economy must be improved along with the home learning environment. In addition to instruction in basic skills, training in locally marketable job skills is essential in a comprehensive program for strengthening the disadvantaged family. Moreover, since the health of the community economy figures so highly in the success of such programs, training will frequently have to be linked with economic development and job creation. In many less-developed countries, cooperative enterprises have proven to be effective alternatives to traditional private-sector approaches, which typically require relatively large amounts of capital. A promising vehicle for educational interventions along this line is the school-based economic enterprise. This community education practice is most often associated with rural high schools but

has potential for urban communities and can serve as a vehicle for adult training and employment as well.

COMMUNITY-WIDE INTERVENTIONS

The systems view of community is of an interactive network of individuals, groups, and organizations that make up the major community systems: government, the economy, education, religion, the family, and so on. It is clear that educational disadvantage is a product of a combination of social forces and factors so complex that no single agency or organization controls the issue. Hence, collaborative action among all community systems is necessary in order to provide unitary treatment to the problems of disadvantaged families.

Community education has been in the forefront in developing models for community integration and analysis. One of the most noteworthy examples is the interagency coordinating council composed of representatives of community agencies and organizations, civic leaders, and community members. There are also many fine examples of cooperative sponsorship of programs and events, as well as joint use of facilities in the form of neighborhood service centers. Community educators have also been successful advocates of new types of school-community partnerships in the form of business adoptions and mentorship programs. Seldom, however, have the problems of educational disadvantage been addressed systematically through collaborative action. Because school failure and illiteracy have been viewed as the products of individual deficits, systemic weaknesses in the family, the schools, and other community institutions have been neglected. As a result, disadvantaged groups, "at risk" in the educational system and the economy, are consistently shortchanged in the quality of services they receive and the human respect they merit.

What is needed is mission-oriented, comprehensive, long-term local action directed toward eliminating barriers to the educational process of disadvantaged families. Community educators must extend their talents to build broader coalitions of support for this aim. They must speak and act vigorously on behalf of the disadvantaged; guide

The apathy and dependency of persistent defeat can form inseparable barriers to family education programs. Community educators can help make a direct attack on poverty and dependency by offering leadership for programs that help families engage in self-improvement. Supportive neighborhood networks of families and self-help groups can be stimulated, and community organizations can be encouraged to represent the interests of the poor.

the adoption of more focused family development objectives and clear-cut intervention strategies; and advocate for the supportive services that will be required to get dysfunctional families back on their feet.

Too frequently, the apathy and dependency of persistent defeat can form inseparable barriers to family education programs. Community educators can help overcome these attitudes and make a direct attack on poverty and dependency by offering leadership for programs that help families engage in self-improvement. Supportive neighborhood networks of families and self-help groups can be stimulated, and community organizations can be encouraged to grow and represent the interests of the poor. Participation on community education councils can also promote the development of leadership skills through problem-solving activities.

INTERVENTIONS INTO EXTRA-COMMUNITY SYSTEMS

Traditionally, the family, schools, and other local community systems have served as mediating structures between individuals and the larger society. A principal role of the local educational system has been to transmit the local culture while teaching the skills needed for handling conflicts with the larger society. There is widespread agreement that the megastructures of modern societies have done much to upset this delicate balance, and, correspondingly, have contributed to disruption of the low-income family. Yet it seems safe to say that these organiza-

tions, and the social forces that brought them into being, are here to stay. It is also clear that they bring benefits and resources to the local community. The issue, therefore, becomes one of empowering local mediating structures once again for their traditional role.

Taken as a whole, the systems model presented here suggests three major avenues for empowering local community systems to perform their mediative roles. Two of these have already been discussed. The first is for each community system, especially the family, to perform its assigned functions well. The second is to strengthen community mechanisms for coordination and integration.

The third avenue for empowering local community systems to perform their mediative functions is to devolve power downward to the units that make up these systems; provide for greater participation at the grassroots level; encourage the growth and activities of local voluntary associations; and limit bureaucracy. This is, frankly, a political role, but community educators must begin to intervene in the formation of policy at the local, state, and federal levels in order to assure the appropriate allocation of resources to family and child development.

The National Community Education Association and every state community education association should have a family-oriented platform for social and political change. These organizations should champion and support the expansion of human services and coordinated family and child development policies. They

should promote mechanisms and incentives for interagency collaboration; federal and state human services coordinating councils; and clearing-houses to gather data, share information on model programs and research, and facilitate networks among local communities. Specific programs we need right now are better pre-schools and child care, better low-cost transportation to work and schooling, preparation for employment that does not just "cream" the temporarily displaced, and locally delivered primary and preventive health care. □

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A HEAD START

BOTTOM-LINE EDUCATION

A BUSINESS-RUN SCHOOL IN CHICAGO SEEKS TO IMPROVE LEARNING WITHOUT A BIG RISE IN COSTS

By ELLEN GRAHAM

CHICAGO—The turnout for the power breakfast was—as they say—gratifying. CEOs Vernon R. Loucks of Baxter International Inc., Edward A. Brennan of Sears, Roebuck & Co., and Stephen Wolf of UAL Corp. had packed a private hotel dining room with a few dozen of their cronies, the captains of Chicago's largest corporations.

Genially—if bluntly—Ed Brennan stated the agenda. "Frankly," he said, "we're here to put the arm on you." The cause? A fledgling inner-city elementary school. The featured speaker? Elaine C. Mosley, its demure black principal.

A few years back, such a meeting might have seemed improbable, even incongruous. But no longer. The schooling of poor urban children has become a priority for U.S. corporations hungry for skilled workers, and Ms. Mosley has emerged as a high-profile bridge between the converging worlds of business and education. As principal of the Corporate/Community School in Chicago, she presides over the nation's first corporate-financed and -managed elementary school.

"You and I have a lot in common," she told the breakfasting CEOs last summer. "You have chosen to provide services and make products to meet a select market demand. I'm in the business of developing minds to meet a market demand... I'm developing people who will someday be able to participate in your businesses or own their own."

Taking Over Production

Schoolhouse and board room have merged at the Corporate/Community School. Dismayed by the faulty products being turned out by Chicago's troubled public schools, some 60 of the city's giant corporations have taken over the production line themselves. Their research-and-development lab-

oratory is housed in a former parochial school in the impoverished, predominantly black neighborhood of North Lawndale on Chicago's West Side. Private, year-round and tuition-free, the school aims to prove that in the right setting poor children can learn as ably as suburban kids. It operates under the same constraints as Chicago public schools in terms of class size, and its pupils are selected by lottery to reflect a full range of abilities.

But there the similarities end. For the corporate school's founders are after something rarely seen in urban schools today: productivity. And they vow to solve the central dilemma of school reform: how to vastly improve educational quality for all children without a vast increase in costs.

Now well into its second year, the school has made an impressive beginning. Most students showed first-year gains in achievement-test scores, self-esteem and discipline. Staff and parent morale is high, and the 200-student school has been besieged with applicants—1,400 community children applied for 50 openings last fall. Although first-year operating costs were considerably higher than the Chicago average of \$4,100 per pupil, they should be close to that target when full enrollment of 300 is reached in two years.

The Corporate Model

The key, the school's founders believe, is in a corporate management model. Why not, they reasoned, take the lessons learned by American industry during the past decade of restructuring and apply them to education? Their school would be small and nimble enough to stay responsive to its student customers. It would invest in teaching rather than tangled layers of administration. Its staff would be free to innovate, yet accountable to a

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Students in front of the Corporate/Community School, housed in a former parochial school in a poor Chicago neighborhood. The school has been besieged with applicants—1,400 community children applied for 50 openings last fall.

Ms. Graham is a feature writer and editor based in The Wall Street Journal's New York bureau. She also serves as a contributing editor of this Wall Street Journal.

REPORT

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PHOTOGRAPHS BY JEAN MOSS

A HEAD START



A COMMUNITY PORTRAIT

CLOCKWISE FROM LEFT:

ELAINE C. MOSLEY, PRINCIPAL OF THE
CORPORATE/COMMUNITY SCHOOL

JOSEPH KELLMAN, THE SCHOOL'S FOUNDER

VERNON R. LOUCKS, CHIEF EXECUTIVE
OF BAXTER INTERNATIONAL INC.

LURA DANLEY, STUDENT, AGE 7

CURTIS PERRY, STUDENT, AGE 8

NATASHIA MCCULLOUGH, STUDENT, AGE 6

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AHEAD START

LAWNDALE

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Left to right: Janarri Guest, age 7; Sheriden Bates, age 6; Doreean Williams, age 7

board of directors for results.

These are radical ideas in most urban school districts, where teachers and administrators get their paychecks and tenure whether or not their students learn, and where school failure is usually blamed on such outside obstacles as underfinancing and ghetto pathology. If the corporate school works, the old excuses won't wash any longer.

"It will have demonstrated what is possible," says Dale Mann, a professor at Columbia University's Teachers College. "The question then ought to be—why isn't it happening in other places, and how can we require it to happen?"

That puzzle gnaws at Joseph Kellman, the 70-year-old Chicago businessman who has been crusading for a corporate school long enough for an entire generation of Lawndale children to drift through Chicago's failing schools. Why, he asks, do public schools resist innovation when "in business if you build a better mousetrap, the world beats a path to your door?"

Mr. Kellman is not alone in his frustration, as evident in the thousands of school-business partnerships that have sprung up in recent years. But most of these partnerships share a common flaw: The managers have neglected to manage. Educators, not business, have remained firmly in charge of the reform agenda.

"Business was overly respectful of the schools," says Michael Bailin, president of Public/Private Ventures, a nonprofit Philadelphia group that assessed a number of these collaborations and found them long on cosmetics and short on results. Business executives are now in the forefront of a new push for performance, pressing for fundamental reforms. In fact, in Chicago and elsewhere they are looking to revamp entire city school systems.

'Schools Are Not Widgets'

Yet a hands-on approach doesn't guarantee good results. "Schools are not widgets," says Mr. Bailin. "A school superintendent can't snap his fingers and change the way education gets delivered in the same way that a businessman can close down a factory, say, or lay off workers." The difference, he says, is that a corporation

goes out of business if it fails to produce, while monopolistic school systems remain insulated from market forces.

Anid Lawndale's seedy row houses and rutted streets, the buff-brick Corporate/Community School stands as a "safety zone," as student David Wilson puts it. Here, alleviating the obstacles to learning that lurk outside the school walls is as much a part of the curriculum as are math and reading, explains Prinus J. Mootry, the school's project director.

"You ask a typical class of 25 kids in this neighborhood if they've ever seen someone shot, and a third of the hands go up," says Mr. Mootry, who grew up in a Lawndale housing project. "They see things suburban kids might not see in a lifetime. Yet they still come to school ready to learn and be hugged."

This school doesn't disappoint: Hugs and praise envelop the children. More basically, teachers assume responsibility for their pupils' physical and emotional welfare outside school—a task that typically swamps inner-city schools with much larger enrollments. If a child needs housing, heat, glasses or a hearing aid, nurse Phyllis Pelt cuts red tape with the network of social agencies that the school has carefully cultivated. Mornings may find Mrs. Pelt conferring with a teacher about helping a parent discipline without hitting, conducting a stress-relief workshop for mothers, or telephoning a parent who can't get a child to school.

"You need to set the alarm clock for seven, not eight," she patiently instructs one mother. "Come in on Monday, and we'll outline a short plan. Bring the baby."

Parent Attendance

Teachers visit students' homes, stressing the need for all the adults in a child's life to support schooling. Although public schools in the area typically get only a handful of parents to turn out for meetings, attendance here averages 85%. In addition, many parents volunteer for classroom, bus or office duty.

Bruce Berndt, president of the Chicago Principals Association, says public schools "routinely" intervene when students have trouble at home. But he concedes that ancillary staffing for referring pupils to social agencies isn't adequate. The 1,700-student high school he administered, for example, had a nurse only 1½ days a week.

By design, the corporate school challenges most con-

Continued on next page



Elizabeth Harris, age 9

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AHEAD START

Continued from preceding page
ventional notions of schooling. Classrooms are organized for discovery, teamwork and lively conversation, rather than numbing lectures by teachers standing at the blackboard. By admitting two-year-olds, it can provide optimal nurturing, stimulation and early remedial help. Its year-round schedule—and the fact that the building is open from 7 a.m. to 7 p.m.—exists

Although the students' performance on standardized tests administered last August showed significant first-year gains—particularly among the youngest students—many pupils still fall below national averages. "We won't see a pattern until we look at the scores over time," Ms. Mosley says. Nor is progress always reducible to raw numbers. At one of their informal weekly staff meetings, for example,

borhood. Adds Jacqueline B. Vaughn, president of the Chicago Teachers Union: "It's not fair to measure the public schools against this model if all the variables are not the same."

Corporate school officials counter that they simply allocate funds differently, spending more on classrooms and less on administrative overhead. Moreover, they say, they aren't locked into rigid collective-bargaining agreements that often stifle innovation.

Teachers, for instance, earn about 10% more than the Chicago public-school scale, but they work a longer year, not to mention a longer day. No one, including Ms. Mosley, has tenure. (Ms. Mosley replaced one teacher after the first year because her teaching philosophy didn't mesh with the school's.) And teachers' raises are tied to performance rather than seniority. "Everything is related to student outcomes," says Ms. Mosley, a former principal in suburban Oak Park, who was recruited to her \$82,500 post after a nationwide search.

Like Making a Buick

"If you were manufacturing Buicks, you would have the same objective," observes Walter L. Kraus, a Baxter executive who is the school's executive director. Classrooms overflow with state-of-the-art learning materials, but teachers often augment these with free community resources. While acquisition of a school playground is being negotiated, for example, pupils use the neighborhood park and YMCA pool.

Unanticipated building-renovation expenses, coupled with underenrollment, pushed the per-pupil cost of the first year up to \$5,500, more than \$1,000 above the Chicago average. "We're in start-up," says Baxter's Mr. Loucka. "When we are up to full size, the cost will be in line with public schools." (About 50 new students will be added each year until the maximum of 300 is reached.)

The idea of using corporate expertise to turn around bankrupt urban schools came to Joe Kellman more than 20 years ago. Mr. Kellman, whose cloud of unruly white hair and deep-set eyes give him the look of an Old Testament patriarch, is president of Globe Glass & Mirror Co. He grew up in Lawndale when it was an enclave of first-generation Poles and Jews, and left school after the eighth grade to help out at his father's glass shop, a business that eventually grew into a pri-

vately held \$100 million-a-year chain of 70 stores. Mr. Kellman returned to Lawndale in 1961 to establish the Better Boys Foundation, a community agency designed to fight delinquency. There, as he met more and more high-school graduates who couldn't read, he came to think of the rescue mission as "a tiny hospital in a war zone with thousands of casualties and with thousands more coming each year."

He began making speeches, trying to interest fellow businessmen in the plight of inner-city schools. Mostly, their eyes glazed over. Then, through his civic work, he met his opposite number in Baxter's Vernon Loucka. Mr. Loucka, a 6-foot-6-inch former football star at Yale, immediately warmed to the idea. "It took me 15 years to find Loucka," Mr. Kellman says today. "He was the heavyweight to bring in other heavyweights." Soon 16 of Chicago's largest corporations had pledged nearly \$3 million to finance the school's first three years of operation. Since then, the roster of corporate donors has risen to 60, and Mr. Kellman now is trying to drum up business support in other cities for a na-

tionwide network of similar schools.

"It's worth our while to try to break the chain of poverty," says Warren L. Batta, chairman of Premark International, a Deerfield, Ill., maker of consumer and restaurant products. Premark has donated executive time and \$50,000 a year for three years to the corporate school. Until recently, Premark's support of education was confined to colleges; now, like so many other corporations, it finds itself compelled to take a longer and broader view. One spur to action was a survey presented to Premark's board showing that 2% to 5% of its domestic assembly-line workers—mostly high-school graduates—were functional illiterates.

"There must be a reworking of the reward system that makes not educating kids so attractive," Mr. Batta says. "There's got to be measurable results—that's the corporate approach."

As he is acutely aware, a generation of children like nine-year-old Shanda Smith is waiting. Shanda, a pupil at the corporate school, has plans. Printed neatly in her lined school notebook, she has written: "I want to be something in life." ■



Robert Willis, age 9

working parents and reduces the negative distractions of the streets. Students progress through the curriculum at their own pace and, instead of report cards, receive four-page written evaluations four times a year.

Most important, teachers such as Mary Kathleen Irwin don't put a ceiling on their expectations for these students. "A lot of our kids weren't sure if they knew anything," she says. "They had seen repeated failures. Adults here believed they could do it, and made them believe it, too. We've seen—I don't want to say miracles—but important, significant change."

Conflict Resolution

Her class of seven- and eight-year-olds has made strides in resolving conflict responsibly. Today the children sit in a circle, listening to Lis and Tenisha air a string of grievances against Lawrence, who has been pestering and pushing them for a week. Their classmates interject opinions and suggestions, held in check by Angela, the class moderator. "We know that industry is interested in people who can work in groups to make things fly," Mrs. Irwin says. "The more the kids are comfortable with that, the more they will be able to advance."

teachers exult over how the children have gradually learned to add color to lifeless black-and-white drawings of themselves.

The school's board of directors—composed of executives from sponsoring companies, educators and community residents—leaves the day-to-day business of educating up to the school's "CEO"—Ms. Mosley—and her staff of eight teachers and eight aides. The directors are responsible for general policy and fiscal oversight, as well as outreach to the public-school system, where they hope that their innovations will ultimately move. Robert A. Sandler, a recently appointed deputy superintendent of the Chicago public schools, sits on the corporate school's board. "To the extent we can profit from their ideas, we will do it," Mr. Sandler says.

Other public-school officials take a more defensive posture. Some suggest that parents who take the initiative to apply to the corporate school are by definition a select group. And a former district superintendent in the Lawndale area says that although the classes in the corporate school may be the same size as the overall city average—about 25 students per class—they are considerably smaller than public-school classes in the Lawndale neigh-

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VIDEO CONFERENCES 6 AND 7

MANY ROADS TO FUNDAMENTAL REFORM:

GETTING STARTED AND CONTINUING THE JOURNEY

Accumulating evidence suggests that restructuring schools to create a new and different learning environment for students is not as simple as finding the one-best program to implement in all schools. This video series has emphasized (1) the need to understand the local needs and context and (2) the need to design and nurture restructuring activities that match these needs and contexts. In short, the adoption of successful restructuring activities is no guarantee of similar results in any other setting.

Each of the six readings in this section explores alternative ways to think about and implement school restructuring. As you read these pieces you should ask to what degree these conceptions of, and models for, school restructuring can inform restructuring efforts in your own setting.

Gary Natriello et al. (1990) argue that schools need to be restructured because they are incapable of responding to the learning needs of disadvantaged students. They develop two major concepts. First, devolve information gathering and interpretation to the most appropriate levels--by 1) revising rules and programs to promote flexibility, (2) using goal setting to enhance the discretion of local educators, (3) creating self contained teaching/learning units, and (4) providing educational resources above those thought minimally necessary. Second,

enhance the schools' capacity to process information--by (1) structuring more effective hierarchies, (2) creating bridging or lateral relationships that cut across organizational subunits, and (3) investing in the development of more sophisticated vertical information systems. While the authors argue that each of these factors is important to school restructuring, they also recognize that "the application process is one of developing an appropriate mix of these strategies in the effective restructuring of schools."

Marsha Levine and Tamar Gendler (1988) discuss the concept of professional practice schools--a local elementary or secondary school specially designed (by a collaborative of university, school district, and teachers' unions) to (1) support student success, (2) provide a professional induction program for new teachers, and (3) support systematic inquiry directed toward the improvement of practice. They provide a useful discussion of the conception, organization, and ethical concerns of such teaching/learning schools. In addition to detailing the implications for preparing teachers as reflective practitioners within the context of uncertainty, Levine and Gendler cite several working examples of programs that embrace these principles. They argue that this restructuring is important because it "give[s] to clinical education the importance it deserves and places responsibility for it in the school site, with professionals, where it belongs."

Beau Fly Jones (1988) explores the importance of attending to changes in curriculum and instruction for low-achieving

students as we undertake school restructuring. Specifically, she reviews the limitations of the traditional models of effective teaching, while arguing that recent knowledge about expert teaching and cognitive instruction needs to be integrated. Finally, Jones incorporates the emergent literature on instructional leadership and effective schools to build the case that how knowledge is taught, especially critical thinking, is as important as what is taught.

Eric J. Cooper (1989) picks up on the instructional reform theme outlined by Jones. He notes the recent decline in teaching critical thinking, especially for minority students, and develops a view of teaching that is "based on providing the appropriate clues, not answers, for the students." Using the concept of "expert scaffolding," he reasons that this "allows students to build concepts from their discussions; only when these concepts, ideas, or mental constructs are experienced or concretized does a teacher move to develop the students' words into key words, phrases, and prose for improving understanding." Such cognitive research, he suggests, has generated new knowledge about learning that requires schools to confront (1) changes in instructional practices in classrooms, (2) changes in instructional materials that are steeped in lower-order objectives, (3) changes in testing strategies, and (4) changes in classrooms organized primarily for teacher lecturing.

Charles M. Reigeluth (1987) reviews several of the recent reports and studies that indicate the scope of problems with schools as they are traditionally organized. He outlines a six-

phase approach to restructuring schools. The first phase ("develop a comprehensive blueprint for an ideal third-wave educational system, with considerable involvement of educational analysts, practitioners, reformers, parents, and students") involves creating new roles and structures. His ideas are provocative because they challenge traditional concepts of the teacher's role (teachers are seen as guides who manage student learning for three to five years) as well as both the content and delivery of instruction ("resources [including well-designed materials, peer tutors, learning labs, and resource people] are used to effect most learning)."

Thomas Toch and Matthew Cooper (1990) report in U. S. News and World Report on school restructuring efforts spearheaded by TheodoreSizer. They detail nine principles driving the Sizer Coalition for Essential Schools model and discuss several problems with their implementation--fear, jealousies, and entrenched habits. Toch and Cooper also explore examples of schools in which these reforms are working--schools where teams of teachers have large blocks of time to plan instruction and where "power doesn't threaten administrators, because . . . they all teach." The potential problems of state regulations stifling efforts to restructure are explored. Toch and Cooper argue that the success of the Sizer schools rests on making them more intimate and "demanding the best from disadvantaged students."

These readings raise a number of interesting questions:
In what ways do the ideas discussed in these readings connect to my own setting?

- . How can these ideas inform the debate about restructuring in my school and district?
- . Which ideas are most interesting to me and why?
- . What needs to happen in my school and district to facilitate discussion about, and the implementation of, school restructuring?
- . What roles can I play in the debate about, and subsequent implementation of, restructuring in my school and district?

8

Restructuring Schools to Meet the Needs of Disadvantaged Students

The programs for meeting the educational needs of disadvantaged students discussed in Part II have been designed to operate in conjunction with schools as they currently exist. A more comprehensive approach to dealing with this challenge would be to rethink the basic design of elementary and secondary schools. This could lead to a major restructuring of schools as we know them.

To consider the need for restructuring we must understand the current organization of most elementary and secondary schools in the United States. Schools are organized as bureaucracies that process students in batches (Bidwell, 1965). To continue to organize schools in this way and believe that they will succeed in educating most students requires that we accept certain tenuous assumptions about students. First, we must assume that most of the students served by a school have fairly uniform middle-class characteristics, which include developed academic skills, predictable learning needs, and habits of prosocial behavior. Second, we must assume that the schools can serve students effectively by focusing upon a rather limited range of the events that comprise the lives of students. We must assume that schools need only be concerned with the immediate lives of students and with only a narrow band of school-related activities. These assumptions probably work fairly well for middle-class students living in communities and families able to provide for their developmental and career-related needs and able to monitor their out-of-school activities. They may have applied to most Americans in an earlier era when society was dominated by local leaders and institutions that shared fairly homogeneous values (Comer, 1981). These assumptions also served reasonably well when the U.S. economy provided large numbers of positions for those who were unable to succeed in traditional schools.

But such assumptions almost certainly cannot apply to disadvantaged students in our complex modern society. Disadvantaged students present the school with exceptional diversity as well as with patterns of performance and behavior that traditional schools operated by middle-class professionals do not anticipate. Moreover, disadvantaged students come with histories of deficiencies and futures of even less promise. Finally, disadvantaged stu-

dents enjoy few of the out-of-school social and economic resources that sustain middle-class students, and they do not benefit from the local support system that sustained earlier, more geographically stable generations of disadvantaged youngsters. The diverse, unfamiliar, and unpredictable backgrounds and characteristics of disadvantaged students confront the school with great uncertainty and the need to learn a great deal about the student in order to move quickly to marshal the appropriate resources.

If a school is unequipped to ascertain the needs of its disadvantaged students, and if a school has too few resources available to help them, then the only choice left to management and staff is to adopt a custodial mode of operation in which the goal is simply for the school to survive as an organization, regardless of its effects on its clients. For schools serving disadvantaged students to become more than custodial institutions, they must develop the capacity (1) to deal with the diversity and uncertainty presented by disadvantaged students in contemporary society, (2) to understand the prior and future conditions that affect such students, (3) to realize the coexisting conditions in nonschool segments of the students' lives, and (4) to provide such students with the appropriate academic and nonacademic resources that are prerequisites for learning. In this chapter we take a fresh look at the organization of elementary and secondary schools as they attempt to meet the needs of disadvantaged students.

CONCEPTUAL FRAMEWORK

A number of strategies for restructuring schools have been suggested (Cohen, 1988; Task Force on Teaching as a Profession, 1986), and there are a growing number of restructuring attempts (David, 1989; Maine Department of Educational and Cultural Services, 1988; Public School Forum of North Carolina, 1988; Seattle Public Schools, 1988; Spady, 1988). Our purpose here is not to catalog these approaches to restructuring, but rather to develop a framework within which to examine the restructuring efforts of schools, for their capacity to meet the needs of disadvantaged students.

The basic premise of this framework is that, if schools are to succeed with disadvantaged students, and to some extent with all students, they must become more responsive to their various needs. Schools must be able to develop a wide array of services and deliver them at the time they are needed. This kind of responsiveness requires that schools be able to acquire and quickly process a great deal of information about students and their ongoing performance and behavior. If schools were able to concentrate on one student at a time, it would not be very difficult to be responsive, but schools must deal with hundreds and thousands of students simultaneously.

There are three factors that together make the task of meeting the educational needs of disadvantaged students in schools particularly challenging.¹ First, all students, but particularly disadvantaged students, present schools with a diverse set of needs that require schools to be able to bring to bear a variety of resources in order to mount appropriate and ultimately successful responses. The typical secondary school has long had a highly differentiated staff responsible for a wide range of educational treatments. The typical elementary school, while not having a staff as differentiated as the secondary school, has come to include an enlarged set of instructional specialists; and the middle school or junior high school that has grown out of the higher grades of the elementary school has moved toward greater differentiation. Schools serve increasingly diverse bodies of students with differing background characteristics, skills, and abilities. Moreover, schools must command and employ an even wider array of resources to meet the needs of disadvantaged students. These may include drug and alcohol counseling, pregnancy prevention, services for adolescent mothers, preparation for work, intervention in troubled family situations, and more.

Second, public schools in the United States have been charged with producing a wide range of products, from math and electronics specialists to educated prospective parents and safe drivers; from learning-disabled students who can function in adult society to students capable of performing in dramatic roles, winning music awards, and achieving athletic scholarships. Indeed, it is central to the notion of the comprehensive school that it produces many different kinds of graduates. Moreover, schools are also charged with preparing well-adjusted functioning individuals able to participate in society as responsible citizens of a democracy. The diversity of these outcomes makes the process of schooling extremely complex.

Third, our society is demanding that students' achievement be higher than it ever has been before. In an earlier era, it did not matter so much if students failed to achieve in school or dropped out, as the economy could accommodate individuals lacking literacy and numeracy skills. The evolving U.S. economy will no longer have places for those who are not able to perform well in school and graduate.

These three factors—the diversity of student needs and the resources required to meet them, the diversity of goals for schooling, and the increasing level of performance necessary for success—have all strained the capacity of traditional schools, which have organizational forms that evolved under much less challenging conditions. Most school reforms over the past 20 years, with the notable exceptions of school desegregation and PL 94-142 (which mandated the mainstreaming of handicapped youngsters), have been directed at reducing the impact of these three factors, not at enhancing the capacity of schools to deal with them.

For example, several policies have been designed to reduce the diversity of students and resource needs that confront schools. Magnet-school programs are designed to reduce the diversity of students in a school by assembling groups of students with similar interests in the same building. Special programs such as those for teen mothers, for drug-dependent students, and for disruptive youth attempt to reduce diversity in two ways: first by removing students with certain characteristics from the regular school program, and second by grouping them together, often in separate facilities. Calls for schools to be involved only with academic concerns also represent an attempt to curtail the diversity of resources that must be managed by schools. Various proposals for enhancing student and parental choice in selecting schools may have similar effects in reducing the diversity of students present in individual schools.

A number of policies have also been designed to reduce the diversity of goals or outcomes pursued by schools. The growth of standardized testing in the 1970s had the effect of constricting the range of outcomes for which schools were held responsible. The "back-to-basics" movement that began in the 1970s continued into the reforms of the 1980s in the form of the "New Basics" recommended by the National Commission on Excellence in Education (1983), again narrowing the range of educational outcomes to which attention was directed.

Finally, there have also been policies that had the effect of reducing the level of performance expected of schools. The minimal-competency testing programs implemented by a number of states have served to focus the attention of educators and the public on student performance at relatively low levels. This ignores the needs of higher-achieving students and is far different from holding schools responsible for the academic and social growth of all students.

The foregoing discussion serves to illustrate a fundamental difference between prior reform efforts and our approach to restructuring schools. Rather than attempting to reduce the challenges presented by the diversity of students, the diversity of resources and goals, and the high levels of performance expected of schools, we argue for changes in the organization of schools to meet these challenges. A major focus is the reduction of uncertainty.

Like other organizations, schools must deal with uncertainty in executing their tasks; that is, they must attempt to improve the matching of resources with needs in working to produce desired outcomes. Schools need information on current student performance and behavior and on barriers to improved performance and behavior. They also need information on educational processes and their impact on students. If uncertainty is viewed as the gap between the information required to respond most appropriately to student needs and the information that is actually available, then there

are two basic ways to reduce uncertainty (Galbraith, 1973): (1) by reducing the school's need to process information, and (2) by increasing the capacity of the school to process information. The restructuring strategies that we propose in the next sections are aimed at these ends.

STRATEGIES FOR REDUCING THE SCHOOL'S NEED TO PROCESS INFORMATION

As schools have grown in size and the control of the educational process has become more centralized, the demands of schools and school systems for information on student needs and performance have increased dramatically. As decision making about the educational program has become far removed from students and classrooms, the need to provide decision makers with information on students has become more pressing. For example, if decisions about curriculum are to be made at the school district level instead of at the classroom level, then district decision makers need detailed information on past patterns of student performance and the impact of any new curricular offerings. Unfortunately, the capacity of schools and districts to gather and process such information has often not kept pace with the centralization of decision making. As a result, decisions about the school program are often made without adequate information. This problem has become even more severe as more and more decisions about the educational program have moved to the state level as a result of the recent wave of school reforms.

One way to correct the problem of centralized decision making in the absence of adequate information is to move decision making closer to the source of the information—the students and those who teach them. We recommend four strategies for moving decisions to levels where information on student performance and behavior is available: (1) revising rules and programs to promote flexibility; (2) using goal setting to enhance the discretion of local educators; (3) creating self-contained teaching/learning units, to allow educators to make decisions about deploying resources to meet student needs; and (4) providing educational resources above those thought minimally necessary, thus allowing educators some discretion in addressing emerging needs. We discuss each of these strategies in turn.

Flexible Rules and Programs

Rules, procedures, and programs are all devices designed to increase the ability of an organization to plan activities. They are common in all types of schools and embody certain assumptions about the way tasks will be performed. Schools adopt and utilize a variety of procedures, or sequences of

rule-governed behavior, such as those connected with scheduling classes, recording attendance, accounting for "dropouts," reporting student performance, and hiring and assigning teachers. Schools also employ a great variety of programs, ranging from the standard curriculum guidelines to the programs of study to which students are assigned, to special instructional programs to meet special needs of students. Indeed, efforts to address the needs of disadvantaged students typically take the form of programs, and these have often been implemented at the insistence of external funding agents concerned that resources be targeted appropriately. Schools have relied upon rules, programs, and procedures to organize many of their activities. In general, rules solve a number of problems for schools and enable them to create order out of uncertainty. In some areas, such as student misbehavior, research has demonstrated that well-developed systems of rules reduce problems (Gottfredson & Gottfredson, 1985).

However, rules, programs, and procedures work only when the exceptions or deviations are relatively few in number. In schools confronting the wide sociocultural diversity characteristic of disadvantaged populations, the number of exceptions and deviations is often large. As a result, the rules fail to serve the function of reducing uncertainty and often cause a redirection of the energies of staff toward rule enforcement and away from the educational processes that rules are supposed to permit. Even in suburban schools with middle-class students, the number of exceptions and deviations may make the use of strict systems of rules difficult (Natriello, 1982). Programs may suffer when school officials spend unnecessary time deciding which students are eligible for program resources when all students in the school might profit from such resources. For example, students in urban schools often participate in a variety of pull-out programs that may do more to disrupt the regular class, composed primarily of students who nearly qualify for such programs, than to target educational resources effectively. As the numbers and proportions of disadvantaged students increase in our elementary and secondary schools, special programs will become a less effective strategy for responding to their needs. As we discussed in Part II, when disadvantaged students return to the regular school environment after being served by a special program, their performance deteriorates below the level of their more advantaged peers.

Rules designed with one set of conditions in mind are often counterproductive when actual conditions in schools are quite different. Thus, restructuring efforts may seek to modify or eliminate rules or shift decisions regarding the creation of rules from outside the school to the school level. For example, planners of the Schools for the Twenty-First Century project in Seattle (Seattle Public Schools, 1988) proposed to have one day a week with flexible scheduling, to permit student contact time devoted to activities such

as self-directed study; large-group instruction; and community service and staff activities such as planning, training, and curriculum development. Such scheduling might allow the staff to meet the needs of students more effectively. Other restructuring efforts have granted relief from inappropriate rules and regulations. The Lead Teacher Project in North Carolina (Public School Forum of North Carolina, 1988) granted schools relief from state statutes and policies in exchange for accountability for results. A restructuring effort in Maine included provisions for waivers for current state requirements (Maine Department of Educational and Cultural Services, 1988).

As a general principle, rules, procedures, and programs should be developed, specified, and controlled at those levels in the school system that have access to the best information on the impact of those rules, procedures, and programs. For example, it may make sense to have a "no pass, no play" rule to govern student participation in interscholastic athletics, but the rule should be specified at a level where adequate information is available on the impact of the rule. If state legislators decide to enact such a rule, they should be willing (1) to invest in the data-collection effort to monitor its impact continuously, (2) to establish a mechanism by which to consider appropriate exceptions to the rule, and (3) to certify to the public that the rule is having a positive effect on the education of students. If lawmakers are not able or willing to engage in these activities, then perhaps a rule of this sort is best left to individual schools or districts, where the same requirements might be more easily met. Those who promulgate rules, procedures, and programs should assume responsibility for their effects.

Using Goal Setting and Monitoring to Increase Individual Autonomy

Goal setting is a strategy designed to increase the flexibility of an organization to adapt to the inability to plan for all events. Goal setting makes it possible for individuals at various points in the school to respond to novel situations without referring to superiors in the hierarchy. If the goals of the organization are understood, individuals can exercise considerable discretion, as long as their actions are consistent with the overall goals. Thus, in theory, goal setting is a mechanism for decentralized decision making.

In the last 25 years schools have increasingly come to rely upon targeting or goal setting in the form of instructional objectives (Mager, 1962). Federal initiatives for management by objectives and program evaluation (Rivlin, 1971), state emphases on program structure and assessment such as Florida's and North Carolina's public reporting, court rulings such as New Jersey's "Thorough and Efficient" mandate (Wise, 1979), and the popularization of research such as Edmonds's "Five Effectiveness Factors" have all pushed

schools toward rational goal setting. Some have even suggested that schools have relied on such devices to too great an extent (Callahan, 1962; Natriello, 1984; Wise, 1979).

But the implementation of goal setting in many schools has resulted in less rather than more flexibility. When goals are linked to highly specified behavioral expectations for performers, they serve to deprive individuals of discretion and rob organizations of flexibility. Moreover, the setting of goals and objectives can become a ritual designed to please those in power, while having either no effect or a constraining effect on the performance of key tasks. For schools serving the disadvantaged, inappropriately implemented goal setting systems can have serious negative consequences, since they curtail the ability of schools to respond quickly to student needs.

Moreover, schools serving diverse populations may have special difficulties in implementing a goal-setting process. Resolution of tensions among conflicting programmatic priorities remains a social policy issue for most schools. This may be particularly true for those serving disadvantaged populations, where agreement on goals may be difficult to reach and where goals, once agreed upon, may be difficult to achieve. Thus, a strategy with the potential to enhance the flexibility and effectiveness of the organization may actually impede it.

The involvement of all relevant participants — administrators, teachers, parents, students — in the goal setting process can be a method of achieving the consensus necessary for schools to function effectively. Comer (1980) argues that consensus about where the school needs to go and what it is trying to accomplish is the most important element in making schools work. Once consensus is achieved through a participatory process, the articulated goals and objectives of a school should function as a liberating force by defining broad limits within which teachers and administrators can work to meet the needs of students.

A number of districts utilize goal setting and monitoring of results at the school level. The North Carolina Lead Teacher Project includes school-based accountability teams that develop models tailored to the school goals determined by the faculty of each school (Public School Forum of North Carolina, 1988). A 1989 overview of the project states that, "once faculties have been involved in determining accountability goals and setting strategies to meet their goals, measurable improvement is the result" (Public School Forum of North Carolina, 1989, p. 3). Similarly, the Seattle Public Schools' (1988) School Focused Leadership is a "process by which each school community defines its unique needs and participates in formulating the district-wide vision, goals, and objectives" (p. 51).

Clune and White (1988) found that school-based management councils are fundamental elements of districts engaged in school-based management.

The principal, teachers, parents, community members, and, sometimes, students serve on these councils. They make decisions for individual schools regarding matters such as textbook selection, curriculum, and hiring. These councils can develop goals for individual schools and monitor progress toward achieving those goals.

Systems for goal setting, including instructional and behavioral objectives, should be used to permit and enhance the discretion of local educators, as well as facilitate students' access to appropriate educational resources. Once in place, goals should also be used to guide accountability efforts.

Creating Self-Contained Teaching/Learning Units

Organizing around self-contained tasks is a strategy designed to allow organizations to adapt more readily to their inability to anticipate needs; it also helps them to plan by placing all relevant resources—and the authority to employ them—in close proximity to the clients who need them. Such a strategy reduces the need to plan and allocate particular resources prior to the time when client conditions actually become apparent.

Schools have often organized around self-contained tasks. This strategy is the dominant form of organization at the elementary school level, where teachers and students are placed together in self-contained classrooms in which many of the necessary instructional resources are present. This form has been severely threatened, however, as special pull-out programs, typically federally funded, have disrupted this arrangement.

At the secondary school level, the dominant form of organization has not been self-contained tasks. Instead, there is a functional division of labor as a student moves among a series of teachers, each of whom is thought to possess one kind of learning resource (e.g., English, mathematics, science, social studies, etc.). Unfortunately, in most secondary schools, there is little communication among these teachers and little coordination of the overall student program (Garet & DeLany, 1985; Natriello, 1982). While it is generally assumed that this process is managed by the guidance staff responsible for developing student schedules, there is considerable evidence that most guidance counselors do not have sufficient time or information to coordinate student programs in a meaningful way.

This lack can lead to serious difficulties for students, at the very least placing a premium upon the ability of students to manage their own programs. Some students become very astute managers of their programs, while others, among them the disadvantaged, never quite understand the subtleties of selecting courses that maximize their performance. This exacerbates the existing performance differentials between students of different

ability levels. It also presents a situation in which most of the important instructional management is being done by students themselves, sometimes in conjunction with astute parents. Administrators, guidance counselors, and teachers have insufficient information to plan coherent academic programs for students initially, and have almost no information in sufficient time to make adjustments to those programs as problems develop and re-planning is required.

When these problems become severe and inescapable, secondary schools often resort to the strategy of self-contained tasks. This pattern of organization, in which designated learning resources are available to a work group of teachers and students organized around outputs, is evident in special programs for students with clear academic problems, such as drop-outs, teenage mothers, and learning disabled students. The important point to note is that this form of organization makes information on the performance of the system more readily available to those who have access to the resources necessary to overcome any performance problems. Earlier reforms calling for "house plans," schools within a school, middle school modules, and "alternatives" reflect efforts to influence schools in this direction.

An example of the strategy of self-contained tasks is evident in David's (1989) description of middle schools in the Jefferson County Public Schools in Louisville, Kentucky:

Middle schools are organized into mini-schools, each with roughly 150 students run by a team of five teachers, one of whom plays the role of "team leader." Each team makes its own decisions about instructional methods, curriculum, scheduling, and materials; as one teacher described: "The schedule is entirely up to the team; we don't ring any bells. There was a time when we believed only counselors could do that." [p. 5]

These teaching teams have most of the resources needed to respond quickly to the educational needs of their students.

While secondary schools have sometimes organized around self-contained tasks, in general they have retained the functional task division in which a single student receives instruction from multiple teachers, each of whom is a specialist in some segment of the curriculum. There is little reason to expect most secondary schools to depart from this dominant and traditional pattern of organization, in spite of articulate calls fromSizer (1984) and others for more cohesive programs. Of course, it is just this form of organization that presents the most difficulty for providing decision makers with information on the performance of complex and unprogrammable tasks. While all students are served less well by this lack of information, disadvantaged students have the fewest nonschool resources to compensate for this situation, so they suffer the most.

Entrenched patterns notwithstanding, schools can be organized around self-contained teaching/learning teams to a greater extent than they are currently. Schools can establish teams to serve groups of students, so professional staff members familiar with the needs of students can diagnose educational problems, make decisions about the educational resources they require, and see to it that students receive the appropriate resources. Such forms of organization should not be reserved for students with very severe problems, but used to serve all students, to help prevent problems from developing.

Providing Schools with Slack in Staff Resources

Perfect planning would allow schools always to have just the appropriate level and mix of resources to meet student needs. Both staff and students would be optimally engaged in the educational enterprise, and neither would have excess time on their hands. Unfortunately, organizations as large and complex as schools cannot plan perfectly, and they must therefore decide whether the "slack" that arises when resources and needs are not balanced should occur among staff or students, either by deliberately providing extra staff resources for peak demand periods or by allowing students to be unengaged in the educational enterprise whenever student needs exceed staff capacity. Each option has its consequences: On the one hand, "slack" staff resources means providing additional personnel who may be unengaged during periods of lower demand, and this in turn inevitably has an impact on budgets. On the other hand, "slack" student resources means allowing students to be idle, which results in lowered performance of individual students and of the school overall.

A simple example from the world of retail merchandising demonstrates this phenomenon. A store manager attempts to plan staffing patterns so that there are sufficient staff to meet customer demands. However, since customer demands ebb and flow in unpredictable ways, at times the staff outnumber customers and are not directly engaged in service, while at other times the customers greatly outnumber the staff and must wait unserved until a staff member becomes available. In either case there are resources that are unengaged, sometimes those of the retailer, sometimes those of the customer. An organization may attempt to balance its resources against the demands of customers or clients; it may decide to have additional staff on hand in order that clients must seldom if ever be unengaged; or it may decide to have minimal staff and thereby cause clients or customers to be unengaged a good deal of the time. Of course, the latter strategy involves a risk that customers or clients will take their business elsewhere.

The strategy of slack student resources has always played a role in the

organization of schools, but it is only most recently that we have become more keenly aware of the costs associated with this strategy. There are a number of obvious troubling examples. Jackson's (1967) point that students spend a good deal of their time waiting was made following observations of an elementary school classroom, and Goodlad (1984) noted the same phenomenon to an even greater extent among secondary school students. Students spend a good deal of time unengaged in learning activities because they are simply waiting for instruction to commence. This is true of the time spent passing between classes or subjects, the time spent waiting for a class to be brought to order, the time spent while a teacher disciplines other students, and so on. Until recently we have not thought of student time as a resource, but concern with how time on task affects student learning (Karweit, 1984) is evidence that educational researchers and practitioners have come to realize the importance of this type of resource.

But student waiting time is not the only example of slack student resources in American schools. Other forms include the assignment of students to classes that are overcrowded or inappropriate for their learning needs, the lapse in time between when a teacher or student discovers that a misassignment has occurred and when a student can be reassigned to a more appropriate class, the unproductive transitions between sequential classes whose contents are not coordinated, and the inordinate and unnecessary difficulties experienced by teachers and students when students' programs have not been constructed to provide them with appropriate skills to master a course to which they have been assigned (e.g., chemistry students who have not been advised to take appropriate math courses). Schools with high levels of slack student resources often become nothing more than custodial institutions.

Finally, perhaps the most insidious form of slack student resources is the series of implicit decisions on the part of administrators, teachers, and students to settle for less than the highest possible standards and less than excellent performance. In the past several years there has been more than a little evidence that standards for performance in U.S. schools have been seriously compromised (National Commission on Excellence in Education, 1983; Natriello & Dornbusch, 1984; Resnick & Resnick, 1985). While it is possible to attribute this type of decline to a general lowering of standards in society at large, it is also possible to interpret it as the result of schools being forced to accommodate an increasingly diverse and unpredictable group of students and to provide for them an increasingly diverse set of outcomes. The important point is not that increasing diversity leads to lower standards, but that increasing diversity leads to a more challenging set of tasks for those charged with managing schools. This is particularly true for schools serving disadvantaged populations. When school administrators fail to

come to grips with such increased diversity, the result by default is an increase in slack resources in the form of student disengagement, lower standards, and poorer performance.

Significant slack is also generated when resource allocation patterns continue unchanged, even after significant shifts in need; and when resources are dependent upon external events, as opposed to assessments of internal needs. An example of the failure to reallocate resources appropriately might be the heavy investment in school security in lieu of services made during days of student rebellion that continues during days of student apathy. An example of resource allocations that are overly dependent on external events as opposed to internal needs is the all-too-common establishment of dropout prevention programs to signal to the community that the school is addressing the dropout problem when the system lacks the capacity internally to identify potential dropouts and assign them to prevention programs that actually meet their needs. This is particularly a problem in communities where the public is most critical of the schools, those very communities where disadvantaged students are most likely to be concentrated.

In restructuring schools it is important to move from a condition of slack student resources to one of slack staff resources. A key component of restructuring efforts is the provision of time for staff to "reflect, plan, and discuss teaching innovations and problems with their colleagues" (Task Force on Teaching as a Profession, 1986, p. 60). As Elmore (1988) notes, "Participation and concerted action require time away from regular school duties and time to develop and implement new ideas" (p. 11). Yet, as Cohen (1988) observes, "At present, schedules for teachers largely match the school day of students (though the teaching day is generally somewhat longer) and, despite the allotment of preparation time for teachers, rarely are there significant blocks of time during which teachers can interact with one another or with small numbers of students" (p. 13).

Strategies have been developed to make more time available for teachers. The use of support staff such as technicians, assistants, clerical aides, teaching interns, and community volunteers may provide some relief for the time constraints under which teachers operate (Task Force on Teaching as a Profession, 1986). Increasing reliance on paraprofessionals may permit teachers to engage in essential planning and collaborative activities (Pickett, 1989). One school in the North Carolina Lead Teacher Project used a schedule adjustment to provide all teachers with a duty-free lunch as well as daily planning time for teams (Public School Forum of North Carolina, 1988). Whatever the strategy, schools must be restructured such that teachers have sufficient slack time to engage in the new tasks envisioned for them.

Schools should be encouraged and enabled to shift from a situation

of slack student resources to a situation of slack staff resources. Schools should be organized and supported so that there are back-up systems, reserve personnel, and other extra resources that can be used when problems arise, as they inevitably will when dealing with at-risk students. Teachers and administrators must have appropriate alternative courses of action if we do not want them to adopt a custodial mode of operation when faced with the problems of disadvantaged students. Conversely, students must have access to a surfeit of educational resources.

Providing appropriate slack staff resources will require a basic and profound rethinking of our approach to the support of educational systems. We must stop applying criteria of efficiency to educational institutions, for they are inherently inefficient systems. They require large amounts of slack staff resources to be able to respond to the unpredictable problems presented by disadvantaged students.

STRATEGIES FOR ENHANCING THE SCHOOL'S CAPACITY TO PROCESS INFORMATION

The second set of strategies for reducing uncertainty and improving the performance of schools operates by enhancing the capacity of school organizations to gather, process, and use information about student performance and behavior and the impact of educational resources on that performance and behavior. Earlier we referred to the movement of the locus of educational decision making away from the sources of information pertinent to those decisions, and we offered four strategies for reversing this trend. It is also possible to improve the movement of information within the educational system, so that it can more readily reach decision makers at levels further from the sources of the information. This is the subject of this section, and we offer three strategies for achieving this end: (1) structuring more effective hierarchies, (2) creating bridging or lateral relationships that cut across organizational subunits, and (3) investing in the development of more sophisticated vertical information systems. We discuss each of these in turn.

Structuring More Effective Hierarchies

Galbraith (1973) points out that hierarchies originate to provide a way of dealing with exceptions to rules, programs, and procedures. When an event arises that was not anticipated, performers at one level in the organization can ask individuals higher in the hierarchy for a decision about how to respond. Presumably individuals further up the hierarchy can assemble more complete information and formulate an appropriate response. Hierar-

chy is one of the strategies that allows organizations to adapt to their inability to plan for all conditions. Hierarchy has played a key role in the organization of schools. The administrative ranks have long played a primary role in the organization and management of schools (Tyack, 1974).

Recently the notion of having a strong principal to direct operations has been cited as an element of an "effective" school for urban disadvantaged youngsters (Edmonds, 1984). A number of theorists, however, have developed perspectives that call into question the role of the principal. Weick (1976) and Meyer and Rowan (1978) have observed that schools tend to be only loosely coupled, with principals often disconnected from the instructional work of the teachers. External factors also mitigate against strong administrative leadership. As Kirst (1984) and others have noted, the authority relations involving federal, state, and central district officers; program and project officers; and union officers; together with the school principal and administrative staff, create a complex hierarchical pattern that often belies the public notion of a "strong principal." Nevertheless, emerging perspectives suggest that it is possible for the principal to operate through both weak bureaucratic and cultural linkages to have a positive effect on the instructional program (Firestone & Wilson, 1985).

One difficulty with the emphasis on the leadership of the principal is that no single individual can respond to the number of exceptions that may be generated when large numbers of students come into contact with the school rules, programs, and procedures. While it is true that teachers also handle exceptions and deviations, they generally do so in the context of the classroom, where they must interrupt the instructional process. As a result, teachers often ignore exceptions and deviations in order to continue with the original instructional plan. Once again, this may be satisfactory when the number of exceptions and deviations is relatively small. In schools serving the disadvantaged, where the number is large, teachers must choose between responding to infractions themselves, ignoring infractions and pursuing instructional plans, or referring the infractions to the principal or assistant principal and continuing with instruction. When many teachers refer exceptions to administrators, the administrative staff becomes overloaded. The result is the same for counseling staff, when they are the targets of referrals.

What is missing in schools is a more differentiated hierarchy in which actors at different levels might be equipped to deal with different kinds of exceptions. While there have been a number of suggestions for career-ladder plans for teachers, most of these have evolved as ways of making teaching a more attractive career. What is needed is an examination of the roles that need to be filled in dealing effectively with the exceptions generated by all students, and especially by disadvantaged students, as they present so many. Current staff arrangements for responding to exceptions (e.g., special ser-

vices) are not well connected to any hierarchy in schools and are particularly poorly connected to classroom teachers. This results in long delays before appropriate resources can be brought to bear upon problems presented by students. Supervising teachers, with professional positions between classroom teachers and building administrators, could fill an important role as managers of instructional resources. Individuals in such positions could be equipped with specialized knowledge of various student problems (e.g., learning disabilities, precursors of dropping out) or educational resources (e.g., techniques of writing instruction, peer counseling). Problems referred to them would receive timely and expert treatment.

The Task Force on Teaching as a Profession (1986) recommended the creation of the position of a "lead teacher," who would provide leadership in the school and help colleagues to maintain high standards of teaching and learning. The Lead Teacher Program in North Carolina, which began simply as an attempt to create a new and attractive role for teachers, has grown into a much larger effort to restructure schools so they improve outcomes for students (Public School Forum of North Carolina, 1988). Lead teachers head teaching teams that plan together and exercise growing latitude over resources, scheduling, and instructional decisions. By creating a new level in the hierarchy, the program has actually moved decision making closer to the classroom and made the schools more responsive to the needs of students.

Other organizational arrangements might also provide needed relief for overburdened school hierarchies. For example, Comer (1980) describes the effective involvement of multiple participants in a school advisory committee that reinforced and supplemented the regular school hierarchy:

By bringing people together into a governing/managing group that was made up of parents, teachers, administrators, aides, and everybody in that program — and if we had been in a high school it would have included students — by having that group share in identifying the problems in the school, of planning to address those problems, implementing the program that was developed, evaluating the program, and then modifying that program, and having all those people responsible for doing that, and involved in doing that, you restored that sense of trust, that sense of community that existed naturally before. [p. 5]

By involving parents in the governance process, Comer and colleagues were able to reintegrate two hierarchical authority systems — the school and the family — that had grown apart with the transition from a society of small towns and rural areas to our present society in which those who staff our schools, particularly our urban schools, often live outside the community. Not only did the governance committee involve more individuals in responding to the needs of students, it also unified the authority systems to which

students were exposed. Elements of this approach have been noted in other effective schools for disadvantaged students. Wehlage and Smith (1986) cite participatory decision making by staff in governance as a common feature of effective programs for disadvantaged students being studied by the National Center for Effective Secondary Schools. Levin (1987) also stresses the importance of involving teachers, administrators, students, and parents in the governance of accelerated schools for disadvantaged students.

Attention should be directed to the development of more elaborate hierarchies oriented around educational problems. A single strong administrator may be fine in a very small school. For larger schools and most schools serving disadvantaged and diverse students, a more elaborate hierarchy involving supervisory teachers able to deploy and redeploy educational resources quickly is required. Staff positions in such hierarchies could be supplemented by a variety of other individuals concerned with the educational and social development of students. Such additions to the inadequate hierarchical arrangements found in most schools could enhance their capacity to receive information on exceptions and special cases, process that information, and develop rapid responses to the problems of students. Rapid responses to student problems from those with expertise would make teachers more willing to refer problems for action and would offer more support for the work of teachers in classrooms.

Creating Bridging or Lateral Relationships

The development of lateral relationships (i.e., relations that cut across organizational subunits) among individuals in different hierarchies in a school or school district is a strategy for increasing the flexibility of the school to adapt to the inability to plan for all events. By relying on bridging or lateral relationships in arriving at decisions, a school could increase its ability to react to exceptions and deviations from previously developed plans. Lateral relationships allow individuals closer to the task being performed to consult, reach decisions, and redeploy resources in response to changing conditions.

The development of lateral relationships has not been a frequently employed strategy in U.S. schools. Interaction among classroom teachers is a case in point. Despite its demonstrated value, the creation of truly collegial environments in which teachers can exchange information related to instruction is rare. While some schools form coordinating groups *within* curriculum areas, the use of such liaisons *across* curriculum areas has been less common, with the exception of some staffing patterns in alternative schools. It is possible to conceive of a liaison role for coordinating the program of study for a particular grade level or a particular subset of students (e.g.,

students enrolled in advanced-placement science and mathematics courses), but the practice seems rare. Even more rare is the involvement of such lateral processes in decisions to alter plans in response to emerging conditions.

In a study of four public high schools, Natriello (1982) found that there was little communication among different subject-matter departments regarding the total curriculum. The absence of such coordination resulted in teachers being unaware of the workload assigned to students by other teachers. Natriello concluded that this lack of information about the total student workload made individual teachers somewhat reluctant to place heavy demands upon students in their subject areas. In curriculum terms, such lack of coordination leads to perennial internal debates about which teachers are to be responsible for the reading, writing, and spelling performance of students. For example, does the social studies teacher teach and/or monitor competencies in written composition? Does the English teacher teach reading? In the absence of explicit coordination, students experience a disjointed program of instruction. Once again, while middle-class students may have other sources of educational experiences, disadvantaged students are particularly vulnerable to any limitations of the schools.

One strategy for creating bridging roles is that suggested by David (1989). She points out how districts involved in school restructuring delegate responsibilities previously held by district staff. For example, curriculum development may become the task of teachers, with district staff playing a coordinating, as opposed to directing, role. This is an instance in which central office staff are shifted from a place in the hierarchy to act as bridges between hierarchies.

Schools should provide mechanisms and opportunities for the development of lateral relationships among staff in different departments, so they can make decisions regarding the entire educational program in a timely way. Individuals in bridging roles can bring together the necessary information and resources to respond to problems without requiring information to move further up the hierarchy. If teachers had direct contact with district-level specialists through liaisons, they would be able to receive more rapid responses to their requests for special assistance for students.

Developing More Sophisticated Vertical Information Systems

A vertical information system is a strategy designed to increase the capacity of an organization to plan. It is intended to function such that information on the performance of the organization is moved quickly up the hierarchy to those who have the authority to plan for the organization and subsequently to change overall plans and redeploy resources as needs become apparent.

Vertical information systems have begun to develop in school districts across the country in the past 20 years (Kean, 1983). In addition to teacher employment and attendance data, such systems typically collect information on student performance on standardized tests and attempt to make it available to school personnel. More sophisticated systems involve a wider variety of information on student performance and instructional treatments in the form of an instructional information system (Williams & Bank, 1987). The growth of such activities in school districts has been accompanied by the adoption of formal organizational units to manage such research-and-evaluation activities (Kean, 1983; Williams, Lyon, Doscher, Walker, & Cullian, 1979). Theorists have articulated plans for the full development and utilization of such systems. Several examples of such systems were discussed in Chapter 7.

Nevertheless, few schools appear to have vertical information systems that can provide useful data in a timely fashion, thus permitting the rational deployment and redeployment of resources. In the absence of such information, the decisions of school leaders are likely to be influenced more by external factors than by needs internal to the system. For example, amidst the wave of interest in programs to prevent or reduce dropping out, few districts are even in a position to analyze the status of their programs and understand which parts of their current programs appear to be related to early school leaving. However, this has not prevented district leaders from adopting new programs by way of demonstrating an interest in the plight of potential dropouts.

Even when schools have the technical capacity to operate vertical information systems, it is often the case that the information in these systems is not used or not fully used by educators (Sproull & Larkey, 1979). The development of systems that could and would be used by educators might have a substantial benefit for disadvantaged students, if the information could be used to provide more timely and more complete information on student educational performance and lead to subsequent modifications in educational programs. This type of information is essential for the early identification of student learning problems and problems with school programs.

The need for a good vertical information system in restructured schools is evident in the interim report of the North Carolina Lead Teacher project (Public School Forum of North Carolina, 1988):

The existing information structures in schools will not support a comprehensive and defensible accountability model. The absence of clerical assistants for teachers, inadequate computing capabilities and the lack of criterion-referenced tests for diagnosing, placing and monitoring student performance are just three

of the deficiencies that need to be addressed to make school accountability a reality. [p. 7]

The report goes on to explain how school staff overcame these problems,

by assigning clerical assistants to instructional teams, purchasing computers, analysing existing norm-referenced tests and matching the contents to the prescribed curriculum, identifying alternatives to help them diagnose and place students and monitor their performance, and buying multi-level instructional materials. At one site, a sophisticated computer-assisted and computer-managed instructional program was implemented. The results were significant gains in student performance. [p. 7]

Because accountability for results is essential for gaining the latitude to restructure schools, vertical information systems become important components of restructuring efforts.

School districts should be encouraged and assisted to develop comprehensive vertical information systems for collecting data on students and the range of educational services delivered in the district. In the absence of such systems, school leaders are in a poor position to make informed decisions about the educational program. Vertical information systems are a key device for moving information from the level of the student in the classroom to the level of school and district leaders. Particular attention should be devoted to developing systems that provide the information needed to permit the frequent redeployment of school resources to meet changing student needs.

THE APPLICATION OF RESTRUCTURING STRATEGIES

The seven strategies for restructuring schools discussed in the previous two sections are all designed to enhance the certainty with which schools develop and deliver educational resources to students, particularly disadvantaged students. The reduction of uncertainty in the operation of schools should lead to improvements in student performance and behavior. Each of the seven strategies will reduce uncertainty, the first four by decreasing the need to process information at higher levels in the school organization, the last three by enhancing the capacity of the school system to process information.

Not all seven strategies have to be employed for improvements to result. Indeed, employing certain of these strategies may make it less necessary to employ others. For example, to the extent that schools create self-contained teaching/learning teams, it may become less important to invest in vertical

information systems. In some sense then, these strategies are functionally equivalent.

It seems, however, that each of these strategies has certain limitations. For example, it is not likely that creating self-contained teaching/learning teams will enable all educational decisions to be made at the teacher level and remove the need for a vertical information system or an elaborated hierarchy. It is equally unlikely that a vertical information system can be made sophisticated enough, no matter how much of an investment is made, to move all educational decisions above the classroom or school levels. Thus, the application process is one of developing an appropriate mix of these strategies in the effective restructuring of schools.

OTHER APPROACHES TO RESTRUCTURING SCHOOLS

Some discussions of restructuring schools have focused attention on the creation of working environments for teachers that would support the development of teaching as a profession (e.g., Task Force on Teaching as a Profession, 1986; Tucker & Mandel, 1986). The assumption is that, if the work environment of schools for teachers is improved, we will be able to attract more capable individuals into teaching and that, if capable professionals are granted sufficient autonomy, they will organize instruction to improve student learning. The rationale behind such restructuring discussions begins with the working conditions of teachers. The aim is to allow schools to compete for scarce talent with other professions by creating professional working conditions (Task Force on Teaching as a Profession, 1986).

Our own approach to restructuring is somewhat different. We begin with the needs of students, particularly disadvantaged students, and ask what changes in the formal organizational properties of schools will lead to improved learning for disadvantaged youngsters. Our approach is closer to that of Cohen (1988), who argues that "the primary rationale for restructuring schools lies in the need to improve the productivity of the educational system in general, and, in particular, student acquisition of higher order thinking skills" (p. 7). We therefore do not assume that the working conditions of teachers must automatically be made more professional. That our suggestions for restructuring schools may lead to the creation of more professional working environments for teachers is a by-product of our analysis of the needs of disadvantaged youth and the structure of organizations, not a function of our initial assumptions. Those who advocate restructuring schools primarily to make them more attractive workplaces for teachers may

attack us for ignoring the needs of teachers except as they relate to the provision of better instruction for students, or they may take comfort in the fact that our conclusions are only subtly different from their own. We call for a system that permits greater discretion for teachers in classrooms *and* for a system that permits better informed and more rapid decision-making at higher levels.

One example will suffice to illustrate how our approach differs from some widely held views on restructuring. Some proponents of restructuring schools have observed that teaching, unlike other professions, relies on the "undifferentiated staffing model that characterizes most schools" (Tucker & Mandel, 1986, p. 24). This is viewed as placing schools at a disadvantage as they compete with other organizations for the most talented individuals, since it is often the responsibility and the challenge of doing the most difficult work that hold individuals in a field. The solution to this problem, from the viewpoint of the Task Force on Teaching as a Profession (1986), is the development of a staffing structure headed by lead teachers who would coordinate and be accountable for the educational activities in a school.

Our analysis of the problems of students in schools suggests the need for greater coordination of the educational activities of the school if we are to be truly able to respond to the quickly changing circumstances of disadvantaged youth. It further suggests that too little such coordination is currently occurring and that current staffing configurations provide insufficient levels and numbers of coordinating personnel to do the job that needs to be done. One solution to this problem is the creation of differentiated school staffing arrangements, in which teachers, individually or collectively, would assume greater responsibility for assessing student needs and coordinating the delivery of appropriate services. Obviously, the lead teachers envisioned by other proponents of restructuring could perform this function, and if that had the additional benefit of making teaching more attractive, all the better. But for us, the key consideration is the provision of better educational services to students.

EDUCATIONAL REFORM AND THE RESTRUCTURING OF SCHOOLS

Our recommendations for restructuring schools imply a critique of some current school reform efforts. The present analysis suggests that efforts stemming from the "excellence" movement may be detrimental to the interests of disadvantaged youngsters. For example, the primary direction of curricular reform suggested in this movement is a narrowing of the school

curriculum along traditional academic lines. The curriculum of choice for the reformers (National Commission on Excellence in Education, 1983) resembles nothing so much as the college preparatory program. The diversity represented by the vocational program and the general program would be restricted.

The proponents of school reform are correct in perceiving the diverse curricula of many schools as unmanaged, but they offer little in the way of suggestions for developing the capacity of schools to process information and direct diverse educational services to students in appropriate ways. Thus, instead of enhancing the capacity of schools to respond to the information needs created by a diverse student population with needs for diverse educational resources, the school reform movement would have us reduce the variety and flexibility available in the current school curriculum. The same impact is implied by the "choice" movement, which envisions different kinds of schools among which students and parents would choose. This strategy relocates outside the school those choices that are available within the comprehensive school, presumably leaving each school less diverse.

The emphasis of the reformers on a "strong principal" who runs a "tight ship" may also be misplaced and/or improperly described. This perspective places too much emphasis on a single individual and too little emphasis on the way in which administrators who offer leadership to faculty members can facilitate their appropriate involvement, through increased lateral relationships across classrooms and departments and through the delegation of tasks to informal faculty leaders and teaching/learning teams.

The second wave of reforms—those that have sought to provide assistance to students likely to be adversely affected—may also be counterproductive. Attempts to address the needs of at-risk students have typically taken the form of special programs or services targeted at certain groups of students. The potential exists that these special efforts will expend resources without developing the organizational capacity of schools. For example, one dilemma for schools wishing to establish dropout-prevention efforts is that they often lack the basic student information systems that would enable them to identify students and their problems properly, in order to understand the quality and extent of programming necessary in the district.

We may be ready to move on to a third wave of school reform, which would involve a serious reexamination and restructuring of the organization of schools. Our analysis carries a number of implications to guide such a restructuring. The seven strategies for dealing with uncertainty identified earlier represent new ways for analyzing and redesigning the organization of schools to enable them to address more effectively the needs of all students, but in particular the needs of disadvantaged students. Not all schools serv-

ing disadvantaged students should be expected to employ all of the strategies; however, individual schools may find it useful to explore alterations in their structure and operations along these lines.

CONCLUSIONS

In this chapter we have developed a conceptual framework for a broad-based approach to restructuring schools so that they will be able to meet the needs of all students, including disadvantaged students. Where appropriate, we have discussed some particular instances in which elements of our restructuring strategy are currently in operation. The emphasis, however, is not on providing specific suggestions but on developing a general understanding of ways in which restructured educational organizations might better serve disadvantaged students. This conceptual approach may disappoint those readers who are eager for quick solutions, but restructuring schooling requires a basic rethinking of the way we operate schools. While all students present school organizations with the challenge of meeting their educational needs, disadvantaged students present schools with needs that are particularly difficult to address within the structure of the typical school in this country. Indeed, for many disadvantaged students, the typical school presents an incompatible environment (Comer, 1980).

We believe that the strategies for restructuring outlined here will enable schools to meet the needs of disadvantaged students more effectively. In the process, they will also improve schools for teachers and for students who are not considered disadvantaged. Approaching the problems of disadvantaged students through the restructuring of school organizations may be both the most effective and the most politically viable choice since such a strategy offers benefits to all students and their parents, and hence to the society.

BACKGROUND PAPER
PROFESSIONAL PRACTICE SCHOOLS

Marsha Levine and Tamar Gendler

PART I: RATIONALE

Over the last nine months a task force initiated by the American Federation of Teachers and supported with funds from the Exxon Education Foundation has met to consider the feasibility of developing what we have called professional practice schools.¹

Professional practice schools are at present only an idea. If implemented, they would be local public elementary or secondary schools specially designed by a collaborative of university, school district, and teachers' unions. Their purpose is threefold: to support student success; to provide a professional induction program for new teachers; and to support systematic inquiry directed toward the improvement of practice. At the beginning of our study we feared dealing with the three missions would be overwhelming. We have come to believe that they are inextricably intertwined.

What are the problems that professional practice schools might address? Why are they important? We believe that professional practice schools address the two issues at the top of the public education agenda today — the problem of how to restructure schools to support student learning and the problems of professionalizing teaching.

These new institutions can be important for the following reasons:

1. They are designed to be the institutional base for teaching as a profession.
2. They replace standardized or prescriptive teaching with professional practice, i.e., reflective, inquiring, and analytical teaching.

¹ Members of the Task Force were Barbara Agor, Traci Bliss, Pat Daly, Linda Darling-Hammond, Gary Griffin, Louise Sundin, Adam Urbanski, Holly Houston, Ann Lieberman, Tom Mooney, Richard Price, Marilyn Rauth, and Phillip Schlechty.

3. They establish a professional induction program at the school site that is rigorous, structured, institutionally based, and professionally controlled.
4. They can significantly improve the quality of education available to students at risk when located in disadvantaged urban schools.
5. They can influence what happens in other schools as they become exemplars of good practice and as the institution that educates new teachers.
6. They can influence practice in public schools as their graduates are accepted and supported.

Professional Practice Schools and Restructuring

We believe professional practice schools can be viewed as an element in the process of restructuring schools. The creation of a learning-centered school for teachers and students is at the heart of restructuring. Professional practice schools will be models of learning-centered environments and will be places where teachers learn to be thoughtful, reflective practitioners. Not every school will or ought to be a professional practice school. But, when enough of them exist, their influence will be felt as exemplars of practice and centers for the education of professional teachers.

In a 1967 John Dewey Lecture, Robert Schaefer, then Dean of Teachers College, Columbia University, described a vision of schools as centers of inquiry. He maintained that schools where teaching involved continuous learning for teachers were likely to be places where students may learn how to learn. This symbiotic relationship between teaching and learning is central to the idea of the professional practice school. In the

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learning-centered school teachers continually experiment, reflect, and inquire into their own practice. Out of this process of inquiry the faculty generates new knowledge. The education of new teachers on site by teaching faculty becomes a vehicle for reinforcing these characteristics, particularly if it is perceived as an institutional role rather than the responsibility of an individual mentor teacher. The teacher education function of the institution encourages a whole-school orientation, the development of a culture of collegiality and public practice; as opposed to individual and isolated practice. We do not propose that all schools should become places that educate new teachers but that they be able to support the kind of professional practice that teachers will learn in the professional practice school.

Professional Practice Schools and Professionalizing Teaching

With respect to professionalization, professional practice schools can have the same impact on teaching that teaching hospitals had on medicine. They can become the institutional base of authority for the profession. The requirements of a profession include the identification of a systematic knowledge base, the presence of a collegial structure, a standard of ethics to guide practice, and a systematic induction into the profession. The professional practice school can provide institutional support for these professional requirements. It can provide that induction process under the supervision of the profession; it can be an institution that upholds the ethical standards of practice; it can provide an organizational structure that supports collegiality; and it can encourage and support the use and generation of that knowledge base.

In that 1967 lecture, Schaefer argued powerfully that schools need to become centers of inquiry because education needs the knowledge that can only be produced by the practitioner in the course of practice. Inquiry-based schools could produce that knowledge. This is as true today

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as it was in 1967. Schaefer's argument is compelling. The task, however, remains difficult. (Schaefer, p. 2.)

This reconceptualization of the school, not as a factory, not as a bureaucracy, but as a center of inquiry, is at the heart of the professional practice school. This vision of school embodies a change in the way we think of teacher's work, the student's role, and the education of the professional.

Much of the work of the Professional Practice Schools Task Force has been to bring together a vision of a school that supports student success with those characteristics of an institution dedicated to professional education and reflective practice. What emerged was a set of guidelines for the establishment of such an institution. We considered the conceptual base, the ethical framework, the organizational structure, and the knowledge base that would support the functions of this institution. What follows here is an explanation of those characteristics and how they came to be included.

THE CONCEPTUAL BASE FOR THE PROFESSIONAL PRACTICE SCHOOL

Progressive Roots

The professionalization of teaching and the school as a center of inquiry both have roots in the progressive education movement. Interestingly, the link can be drawn through the work of Abraham Flexner, father of the modern teaching hospital. Ludmerer's history of American medicine, Learning to Heal (1985), describes the influence of John Dewey's progressive philosophy on Flexner's conceptualization of the teaching hospital in the reform of modern medical education. The importance of teaching and learning in clinical settings and the importance of the relationship between research and practice derive from Dewey's conception of the role of knowledge, experience, and practice in the development of the "thinking" individual. The "thinking" individual is one who can analyze, synthesize and make knowledge-based decisions, and has the skills to carry them out. (Dewey, 1904).

Flexner's interest in the application of these principles extended from medical education quite literally to elementary and secondary education. In The Transformation of the School, (1961), Lawrence Cremin describes Flexner's role in the creation of the Lincoln School at Teachers College in 1917. The Lincoln School was an experimental private school that depended heavily on the teachers' involvement in curriculum design and implementation. The philosophy that guided the progressives in education required a trust in the ability of teachers to play a "thinking" role in the planning, development, and implementation of the educational environment and program. The teachers at the Lincoln School did that.

The Winnetka Plan and the Denver Plan of the same era shared the same child-centered view of the school and the concomitant professional role of the teacher was central. The Winnetka Plan, as it functioned in that

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school district (not to be confused with a watered-down version "replicated" all over that resulted in a virtual tracking system), was, according to Cremin, "the example par excellence of individualized instruction." (Cremin, p. 298.) The Denver program was characterized by two principles: "an abiding commitment to universal education and a profound faith in the average classroom teacher." (Cremin, p. 299.)

These principles, at the heart of the progressive movement, are embedded in today's efforts to restructure schools. The context in which we are trying to implement them is changed. The obstacles to their implementation are the litany of problems that beset the public schools and an accumulation of efforts that have tried to legislate and regulate teaching. The idea of the professional practice school represents an opportunity to create an institution that supports professional standards and provides clinical education that overrides the barriers to creating schools as centers of inquiry for professional practice. It can accomplish this by creating schools that are for students and for teachers.

A Definition of Knowledge and the Structure of Schooling

Education and schooling have underlying philosophical bases that may or may not be explicitly stated. The design of an institution like a professional practice school must begin with such an explicit statement.

The definition of knowledge underlying the professional practice school accepts the notion that there are many ways of knowing and that learning is an active process. There is more than one way of learning.

A school based on this definition of knowledge casts the learner into an active role. The student and the teacher are expected to perform on the basis of what they learn. They are expected to be able to use what they learn; and, most of all, they are expected to learn how to learn.

These expectations for the learner carry implications for curriculum and the roles of teacher and student.

The Professional Teacher: Two Views

Bureaucratic schools are best served by technical experts. Max Weber expounded upon the concept of the bureaucracy and its demand for a corps of technical experts to manage and do the work of such an institution. The teacher as such a professional, possessing scientific and technical expertise, is consistent with that idea. Many teacher education programs are designed to develop such a professional teacher corps. Most staff development is predicated on the same model — the teacher as user of empirical research. Entire school-improvement programs are built on the assumption that teachers and researchers are separate; the researchers generate knowledge, the practitioners receive it.

The traditional view of professional practice assumes a linear and hierarchical relationship between teacher and learner and between scientific knowledge and practice. In other words, the practitioner's role is to take the findings of scientifically based research and employ them in practice. There are two major difficulties with this definition. First, it does not provide for the contribution of the practitioner. The teacher is expected to use the theories and findings of research. It does not call upon him to make a transformation of those findings for the real situations, which are often indeterminate and uncertain; and it does not provide for the contribution of experience to professional practice other than in its contribution to making the practitioner a better user of research. Second, this definition does not provide for the role ethics or values play in defining professional practice. Teaching involves continuously making value-laden decisions.

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The role of the teacher in the restructured school envisioned in the reform recommendations of such groups as the Carnegie Task Force on Education and the Economy, the American Federation of Teachers' The Revolution That is Overdue, and embodied in Schaefer's center of inquiry, is really quite different. Embedded in that vision of school is a view of the professional teacher who is not merely a technical expert but one who transforms a knowledge base, reflects on what is happening, and generates new knowledge. This view of professional teaching has implications for teacher education that underlie the professional practice school.

(It should also be noted that it is this view that forms the basis for arguments that schools and the people in them need to be empowered to make decisions and take responsibility for their actions and the outcomes associated with them. The definitions of education, knowledge, teacher, and learner that are at the heart of the restructured school imply that the teacher must be able to inquire, reflect, make choices and decisions, and act upon them.)

Schon's notion of reflective practice fits well into the model of the school as a center of inquiry. (Schon, 1983, 1987.) According to Schon, the reflective practitioner is one who begins with a knowledge base but whose actions are guided by a system of ethics or a set of values and the habits of inquiry, creativity, analysis, and evaluation. Schon describes reflective practice as the "tacit knowing" that allows the practitioner to "scan the horizon, or have a feel for what he is doing." A reflective practitioner can "think on his feet."

"Reflection-in-action," Schon's term for what the professional does when practicing, allows him to deal with divergent situations in a value-laden context. In contrast, the scientific knowledge base used by the professional is convergent in nature. What is the relationship of "reflection-in-action" to inquiry and to research? Schon responds that

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"reflection-in-action" is really doing research in the practice context. The practitioner constructs a new theory for the unique case he is confronting. This kind of action is a kind of experimenting and can develop a rigor of its own. Inquiry and action come together in reflective practice. It is at the core of the idea of teacher as researcher.

In summary, at the heart of the professional practice school is the convergence of a number of ideas. They are ideas about the nature of knowledge and what they imply for teaching, learning, and for institutions designed to support those processes. They are also ideas about what teachers do when they are practicing as professionals, not as bureaucratic technicians.

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THE ETHICAL BASE FOR PROFESSIONAL PRACTICE

We have already noted that schools and teaching are value laden and that every decision that is made and action that is taken is an expression of values. Professions, by definition, have a moral structure that is meant to guide the professional's actions. Professionals must agree to uphold this moral structure. The school as an institution ought to support that moral structure. The professional practice school is the place where professionals learn what that structure means in action.

A starting place for developing a moral structure or system of ethics for the practice of education might appropriately be those values that are embedded in education in a democracy. Although they may give rise to varied interpretation and implications, they can reflect a set of core values that can become the basis for the development of standards in the professional practice school. The values should guide professional behavior with respect to students, the profession, and society. It might look something like this: With respect to students, teachers should act in the best interest of the their students. They should act in ways to support student success. Their behaviors should be informed by the best knowledge available. With respect to the profession, teachers should uphold the standards of the profession for themselves and for others. They should not misrepresent themselves or their qualifications for practice. With respect to society, teachers shall be committed to the maintenance of democratic values in the settings in which they teach, including: fairness, decency, justice, and equity. These core values would also be used to measure the appropriateness of other actions that are taken in the name of education, i.e., state mandates, regulations from local districts, textbook development, and curriculum development.

Ethical behavior, however, is not solely determined by an explicitly stated moral code. Mary Kennedy (1987) points out that an additional

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source of definition of ethical behavior are the social norms of the school culture. The significance of the professional practice school in this respect is its ability to model the norms of practice that uphold the ethical standards defined by the profession. It is the consistency between the professional standards and "the way things are done around here" that is so unique and important. That brings us to the third area for consideration, the organizational base for professional practice.

THE ORGANIZATIONAL BASE FOR PROFESSIONAL PRACTICE

We have already stated that professions are normally characterized by a knowledge base, a moral framework, and a collegial structure. The institution in which practice takes place ought to support these features; the traditional school does not. The characteristics of the professional practice school are designed to do this. The governance and organization of the professional practice school are designed to support the teachers as the ultimate authority on conditions that affect professional practice, just as doctors oversee decisions affecting medical practice in a hospital. This includes a shared decision-making process among faculty and administration on questions of both policy and practice, with the faculty in control on instructional questions. Collegiality is encouraged by the way in which time is allocated to permit opportunities for frequent and ongoing communication, observation and feedback between peers, joint planning and peer teaching among faculty members. These features, identified by Judith Little (1982) are designed to support collegiality as a norm. Professional accountability, in which teachers are responsible to each other for student outcomes, is supported through opportunities for public practice, joint planning, and review of practice. Assessment procedures extend beyond standardized achievement tests to include profiles of expectations, measures of congruence between expectations and achievement, enrollment patterns, attendance patterns, dropout rates, and exhibits of student learning. Support for reflective practice is provided through allocation of resources (time, use of facilities, accessibility of materials, consultants) to encourage a continuous examination of practice. Teachers are assisted in this process through appropriate record-keeping systems, which are maintained for their use.

In reflective practice teachers are no longer viewed solely as the experts and givers of knowledge. They are truly inquirers. Students, no longer viewed as receptacles for knowledge, become more responsible for their own learning.

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In order to support reflective practice the institution must be flexible enough to accommodate the teachers' deliberations, consultations, and innovations. Schon identifies the following characteristics of institutions that support this. There must be flexibility in student groupings and teacher:student ratios to accommodate different learning needs. There needs to be peer interaction among teachers to allow them to communicate their thinking to one another and get feedback from their peers. Reflective practice requires that teachers know how their students think and what influences them to behave in the ways they do. The traditional school functions with a centrally controlled and administered system of accountability and evaluation that is highly quantitative and seeks to be objective. Reflective practice requires more independent, qualitative, and narrative accounts of progress. Supervision in a professional practice school would focus less on controlling or monitoring and more on support and enabling. (Schon, p. 270.)

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THE KNOWLEDGE BASE FOR PROFESSIONAL PRACTICE SCHOOLS

What should people learn in professional practice schools? What should they already know when they enter? How should assessments of their knowledge be made? Embedded in these questions are a set of issues that educators and the broader community have wrestled with for centuries. What is a good teacher? What does a good teacher have to know? How do teachers learn? We must turn to two bodies of knowledge for what answers have been given. Both are incomplete and inadequate, but they represent the range of knowledge from which we must build the professional practice school curriculum.

What is the Knowledge Base for Teaching

What does a teacher need to know in order to be effective? That ought to depend upon what you want the teacher to be able to do. Answers to this question range from, a teacher just has to be very well educated, to, a teacher must have an undergraduate major in education with a specific number of credits in pedagogy, foundations, and methods. In her site visits to twenty teacher education programs, Amarel (1987) found that most teacher education programs she looked at identified a common set of categories that they considered a part of the knowledge base of teachers. These included: (1) subject matter knowledge; (2) empirical research, which included effective teaching research; (3) social science and humanities for content on schools and society; (4) knowledge of models of teaching, conceptual schemes and theoretical constructs of teaching; and (5) knowledge of whatever the state mandated as required teacher education. These were identified by teacher educators involved largely with the academic preparation of teachers. They constitute the range of knowledge that might then be considered prerequisite to clinical teacher education. It is important to note Amarel's observation that there is little emphasis on classroom management, grouping, or teacher beliefs in

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the empirical research. Pedagogy for restructured schools, including cooperative group teaching, peer tutoring, reciprocal teaching and coaching, are presumably little in evidence as well. These are the areas teacher educators identify; implicit in their response is an unspoken but strong conceptualization of the teacher's role.

If one were to conceptualize the research bases that one might want for the student in a professional practice school, the following categories might be useful.

The first category would be what we know about how individuals, specifically children, learn. The second area is what we have learned about the conditions that support learning, including the research on effective schools and effective teaching and especially including those pedagogies that are related to teaching in restructured school environments, i.e., cooperative group learning, use of educational technologies, peer tutoring, coaching.

A third distinct research base, important to the practitioner, is growing out of an examination of the pedagogical requirements of specific content areas. This research focuses on identifying the effective ways of teaching the main understandings or concepts of a particular subject area such as physics or writing.

A teacher intern entering the professional practice school may be expected to have this knowledge base as well as being prepared in the subject area he will be teaching. In order to be able to use it, however, he must be able to "learn in action." "Learning in action" is a particular kind of professional expertise; and for knowledge of how to develop this, we must turn to another area, that of educating professionals and what we know about that.

What Is Known and What is Believed About Professional Education

Mary Kennedy's (1987) review of the professional education literature led her to isolate four types of expertise that may be the goal of a professional education. The fields she looked into were medicine, law, engineering, and architecture. The kinds of expertise were: (1) skills or technical abilities; (2) application of general principles and theory; (3) critical analysis; and (4) reflection, or what Kennedy calls deliberate action. A given profession may emphasize one kind of expertise over another. Law for example, concentrates on critical analysis in the education of new lawyers, architecture emphasizes deliberate action. It is in focusing on this latter kind of expertise that the professional practice school is unique, i.e., the expertise of the reflective practitioner. How does one develop this ability, these habits of mind, these sensitivities? In order to do that, the teacher intern must develop the skills of what Shulman calls strategic analysis, or Schon describes as reflective inquiry. To help the novice begin to do this is the function of the professional practice school. Schon identifies a set of conditions that must be in place in order for the professional to engage in reflective practice. These conditions create a common ground for inquiry and communication. They include common language that is used to describe reality and to conduct inquiry; commonly held ways of assessing reality; and recognized, overreaching theories that are used to make sense out of phenomena. Fourth, there must be what Schon calls "role frames" which practitioners use to determine what they will do and to define the boundaries of the setting in which they work. Some work has already begun in preparing teachers for reflective practice. The findings of Zeichner, et al. (1987), at the University of Wisconsin, in working with student teachers is an example. However, those efforts are seriously hampered by the lack of a supportive institutional context for the development of reflective practice. Reflective practice requires collegial interaction and a structure that supports inquiry. It cannot be developed or

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sustained in isolation. The developers of professional practice schools will have to bear these requirements in mind as they create these institutions. That is the challenge.

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IMPLICATIONS FOR EDUCATING TEACHERS

Since reflective practice defines a broader arena of usable knowledge than scientifically based professional knowledge, educating the professional must go beyond the transmission of scientific technical knowledge and the training in skill to use it. Schon suggests that kinds of knowing in professional practice include the art of problem framing, the art of implementation, and the art of improvisation. Taken together they affect the way the individual practitioner handles situations that are uncertain, indeterminate, unique and conflict ridden.

Some professional schools, business, law, and medicine, specifically, have endeavored to help the professional learn to "think like a doctor or think like a lawyer" Professional knowledge to Schon, and we would agree, goes beyond that. Thinking like a teacher, or thinking like a lawyer, implies a closed system. A right way is presumed. Although this might be a beginning, it cannot be the end. It will not be sufficient for professional practice. The ability to think divergently is essential and is what makes the difference. The relationship between the professional knowledge taught in schools and this "knowing in action" is not clear. What is clear is that one assumes the other. The knowledge base for professional practice as it is being identified, for example, in the AACTE project, Knowledge Base for Beginning Teachers (KBBT), might be thought of as prerequisite to a focus on the development of reflective practice.

Characteristics of the Clinical Education Experience

The current model for clinical teacher education programs is grounded in a conceptualization of teaching as craft. The practice teaching experience is designed for the novice to observe and imitate the experienced teacher. Through repeated practice it is presumed that the learner will get it right. The cooperating, or mentor, teacher is

expected to be able to pass down to the student teacher those "tricks of the trade" that will make him successful in the classroom. It is essentially an apprenticeship model that has been in use in teacher education since the 17th century. The apprenticeship model emphasizes the mentor or model teacher rather than the intellectual work of teaching. It is as Linda Darling-Hammond has pointed out — idiosyncratic and necessarily limited.² Teaching by rule of thumb or imitation is not professional practice as we have conceptualized it.

Professional practice is characterized by reflection, experimentation, and inquiry. It involves having a knowledge base upon which to make professional judgments and the skills to implement those decisions as instructional strategies. It is predicated on a system of values and governed by a set of norms. In order for the student teacher to be able to internalize those values and norms and to develop those skills and learn the practices of reflection and research, he must be in a learning environment that is designed to support that process. Practice teaching in a traditional school setting will not be able to provide that environment. Only an environment that itself supports those practices and that is especially committed to the education of teachers can provide the appropriate clinical education for professional teachers.

Education for Uncertainty

One of the characteristics of the clinical education experience in the professional practice school is a focus on helping the new teacher deal confidently with the uncertainties of the practice. It is often the case that teachers, working in isolation, tend to blame themselves for failures that really are the result of an inadequate knowledge base. They believe

²For a discussion of student teaching for professional practice, see Michael J. Dunkin, ed., The International Encyclopedia of Teaching and Teacher Education, 1987, Pergamon Press, Oxford, "Student (Practice) Teaching," by E. Stones.

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they ought to be able to do something, or ought to know something that is not really possible. Because teachers have little opportunity to work with colleagues and are not trained in collegial settings, they do not know the extent of others' knowledge and ability and they therefore maintain unrealistic views of what may be possible. Once they appreciate they are working with an inadequate knowledge base, however, they need to know that it is possible to function effectively nevertheless. Their lack of opportunity to learn this from mentors and peers is a major inadequacy in their training.

Some medical school experiences that have been studied (Fox, 1957) appear to be designed to make students aware of the their own limitations but, at the same time, take responsibility for their own actions. According to Fox, they come to realize that they cannot know everything there is to know; that not everything they need to know is available; and that they can still function under these limitations. How does this learning come about? The process of education and the curriculum of the clinical experience for third- and fourth-year medical students in one program studied are designed to have this outcome. The medical student learns that: (a) he can function on the basis of incomplete knowledge; and (b) much of the inquiry and experimentation that is done by teaching hospital faculty grows out of this uncertainty. The student learns that inquiry is a part of professional practice. Some of the experiences of the medical student emphasize for him the limitations of the field. Fox describes the autopsy experience, for example, as central to the student's learning for uncertainty. Fox identifies three essential understandings that emerge from that experience: (1) the student learns that the physicians in charge of the case could not save that patient; (2) he learns that death cannot be precisely predicted; and (3) he learns that causes of death are messy — they often are not easy to pinpoint. Teachers in training, or in practice, for that matter, have no parallel opportunities to learn that the best knowledge available is often not

fully adequate, and that colleagues can function competently in spite of that inadequacy. (Fox, pp. 216-218).

The medical student learns to cope with that uncertainty partly by building as much of a knowledge base as he can. This contributes to the sense of growing competence. He begins to feel that the inadequacy is not personal. Through observations of his peers and his teachers he realizes that they too are often uncertain, further helping him to cope with the feeling. In those observations he learns that his teachers cope with that uncertainty directly and that inquiry is a chief way of coping.

When the student moves to the clinical setting, his chief task is to find an organized way to learn in the clinical setting; "learning in action" is a major part of professional practice. In the clinical setting students are organized into different kinds of learning groups for different tutorials associated with different clinical experiences. They may work in groups of two, five, or more, depending upon the setting and what is to be learned. His relationship with the teaching faculty becomes very important. They are the providers of much of what he has to learn. He listens to them reason out loud.

In the process of learning to cope with uncertainty the medical student learns some very important principles of professional practice. He learns that inquiry is an important part of that practice; that inquiry and experimentation is the way the professional deals with that uncertainty. The second principle he learns is that learning in a clinical setting is different from classroom learning and is an integral part of professional practice. The third principle he learns is that what the practitioner knows is an important part of what he, the student, has to learn; the practitioner's knowledge is different from the book learning that has preceded it and accompanies it.

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The experience of the intern teacher in a professional practice school must be structured to support these kinds of learnings. In order to do that there must be a whole-school orientation, norms that support collegiality, opportunities for public practice, and some sort of support system for the interns to establish a sense of community among themselves as well as within the school. Interns must be grouped for different experiences and for a variety of formal instructional experiences. It should be a structured and purposeful program. Professional practice is not learned by osmosis.

Institutional Requirements for Professional Education

In his discussion of educating the professional, Schon (1987) points out that the fit between this kind of professional education and the traditional university is problematic. (pp. 309-310.) Whereas the university is grounded in academic theoretical and applied research, reflective practice is grounded in inquiry in action. It requires the knowledge base that the university can provide but the structure of the university itself and its norms and culture do not support the kind of educational experience implied by the characteristics of reflective practice. On the other hand, a history of successful school/university collaboration does exist in many places. In some important ways the professional practice schools can be the vehicle that supports this collaboration. In any event, it is important that professional education have its own language, its own traditions, its own systems and expectations, distinct from the academic environment of the university. It needs to develop a structure that models and values public practice, reflection and collegiality. These are all arguments for the establishment of the professional practice school.

PART II. THE CONTEXT FOR PROFESSIONAL PRACTICE SCHOOLS

The first part of this paper described the rationale, the conceptual base, and the ethical, organizational, and pedagogical bases of the professional practice school and their implications for teaching and teacher education. Part II will address the context for the development of such institutions.

"Context" refers to three factors: the environment created by the education reform movement of the 1980s (which is largely supportive of the idea of professional practice schools); the legislative and political climate in the states (which is moving towards increasingly rigid programs for teacher induction that do not include many of the positive aspects of the professional practice schools); and the development of programs that are in some way models for professional practice schools. We argue that these three factors are important in assessing the viability of professional practice schools.

There is a growing tension between, on the one hand, the recognized need to restructure schools and professionalize teaching, and, on the other, the efforts undertaken in many states that have resulted in more standardization and control. The professional practice school can exploit that tension; it offers a strong answer to the concerns of the reformers, and a powerful alternative to the often misguided solutions of the states.

The Education Reform Movement of the 1980s

Each of the three most recent studies that addressed teacher education reform (the Holmes Group, the Carnegie Report, and the Rand Study) proposed some model of a professional practice school. The Holmes Group report, Tomorrow's Teachers, proposes professional development schools that would "connect schools of education with schools." The Holmes Group

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offers a rationale for their development and a set of principles upon which they should be founded:

The improvement and professionalization of teaching depend ultimately on providing teachers with opportunities to contribute to the development of knowledge in their profession, to form collegial relationships beyond their immediate working environment, and to grow intellectually as they mature professionally. The improvement of teacher education depends on the continuing development of systematic knowledge and reflective practice. These two imperatives lead Holmes Group institutions to commit themselves to establish Professional Development Schools and working partnerships among university faculty, practicing teachers, and administrators that are designed around the systematic improvement of practice.

These Professional Development Schools, analogous to teaching hospitals in the medical profession, will bring practicing teachers and administrators together with university faculty in partnerships based on the following principles:

Reciprocity, or mutual exchange and benefit, between research and practice;

Experimentation, or willingness to try new forms of practice and structure;

Systematic inquiry, or the requirement that new ideas be subject to careful study and validation; and

Student diversity, or commitment to the development of teaching strategies for a broad range of children with different backgrounds, abilities, and learning styles.

(Tomorrow's Teachers, pp. 66-67.)

The Holmes Group conception emphasizes the university/school relationship and meeting the need to extend knowledge and effective practice through the establishment of schools as centers for inquiry.

The Carnegie Report proposal for the establishment of "clinical" schools similarly emphasizes the importance of forging links between elementary and secondary schools and schools of education and, Carnegie adds, arts and sciences departments. Their proposal identifies clinical schools as the site for the second year of a two-year graduate program in teacher education. The first year includes course work and internship, concurrently. The second year is a residency in a school with the

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candidate teaching under the supervision of a Lead Teacher. Lead Teachers are envisioned as holding joint appointments in both the school and graduate school from which the residents come. Their description stresses both the opportunities for reflection on teaching, i.e., a learning environment for teachers, and the existence of an environment that models good practice:

"Clinical" schools, selected from among public schools and staffed for the preparation of teachers, must be developed to make this successful. These institutions, having an analogous role to teaching hospitals, should be outstanding public schools working closely with schools of education. The Lead Teachers in these schools should hold adjunct appointments in the school of education and serve a core instructional staff in the Master in Teaching degree program. The clinical schools should exemplify the collegial, performance-oriented environment that newly certified teachers should be prepared to establish. By connecting elementary and secondary education and higher education in a much more direct way than is typically the case now, these new institutions will create a valuable linkage between the elementary and secondary schools, the schools of education and the arts and sciences departments.

(Carnegie Report, p. 76.)

The recent Rand Study (1987) on teacher recruitment stresses the professional as well as the educational dimensions of what they call the induction school. Furthermore, the Rand Study specifically recommends that induction schools be established in high-turnover schools typically found in inner-city neighborhoods. Such a placement would provide a stable, highly skilled core teaching faculty in schools most in need of them. In those schools there is now little incentive for tenured teachers with seniority to remain. The study describes induction schools:

Our analysis suggests that districts should designate high-turnover schools as "induction schools" — schools that will be staffed by a mix of highly expert seasoned professionals and beginning teachers. The purpose would be to provide a supervised internship (including both assistance to and assessment of beginning teachers) while giving the students a better education. Although a variety of models may be appropriate, heavy staffing should be a key feature. The benefits would include:

- * Supervision for beginning teachers with eased entry to teaching, better preparation for teaching, and reduced attrition;

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- * An attractive assignment for senior teachers that recognizes and uses their talent and experience;
- * A setting wherein first-year teachers could be efficiently and effectively evaluated; and
- * More resources and more stable teaching for disadvantaged children.

The induction school can advance teaching as a profession. It is based on the idea that, although the university can educate the prospective teacher, a teacher can become fully prepared only through extensive, supervised classroom experience. In the induction school, seasoned veterans can help induct novices into the profession.

(Rand Study, pp. 95-96.)

Each of the proposals envisions professional practice schools as having an important impact on professionalization of teaching. Each recognizes it as an opportunity to create restructured environments in schools where both teachers (experienced and novice) and students can learn. To the extent that these studies are influencing the reform agenda, professional practice schools are very much on the horizon, with growing acknowledgments that they are an institution whose time has come.

Mentor and Induction Programs

Most states have taken some action towards establishing teacher induction programs. According to a 1986 study by Hawk and Robards, 31 states and the District of Columbia had programs in planning, pilot, or active stages; in their October 1986 survey, the AACTE found that only eleven states had "no activity reported" in the area of teacher induction programs. The nature of these programs varies greatly from state-mandated competency assessments to district-initiated mentoring arrangements; they range from abstract ideas in the minds of administrators to fully implemented three- or four-year-old systems.

Three forces seem to be contributing to the states' efforts to develop teacher induction programs: the drive for accountability and teacher testing, the development of career ladder programs, and the recognition on

the part of many that beginning teachers simply are not receiving the support they need. Programs whose instigation came from the drive for accountability tend to be state imposed (rather than locally elected) and highly mechanistic in their conception of what constitutes an acceptable level of performance for a beginning teacher. Programs whose instigation came from the development of career ladder programs or from the recognition of the need for beginning teacher support may be either statewide or local, and either evaluative or supportive.

Many of the most-established teacher induction programs are solely evaluative and mandated on a statewide basis. Georgia, for instance, evaluates all new teachers six times during their first three years in the classroom. The evaluation team includes an external evaluator, a peer teacher, and the principal of the school at which the beginning teacher is employed (this, as Linda Darling-Hammond points out, confuses certification and hiring by placing the employer in the dual role of school and state representative). The main purpose of these evaluations is to determine that the teachers have mastered the 14 competencies of the Teacher Performance Assessment Instrument (T-PAI). Similarly, Mississippi requires beginning teachers to demonstrate ability in 16 generic competencies, determined by the Mississippi Teacher Assessment Instrument (M-TAI). A support group is recommended but not required.

Missouri's recent "Excellence in Education" act exemplifies a state-mandated program linked to a career ladder. Due to be implemented in September 1988, the plan's reforms include a four-tiered career ladder beginning with a two-year provisional certificate, the creation of professional development committees to support beginning teachers in their first assignments, the mandate that anyone teaching in a teacher education program must have direct and periodic involvement in the public schools, and the requirement that universities take responsibility for the success or failure of their alumni/ae for two years following graduation.

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University faculty met recently to discuss their compliance with the program; numerous initiatives are being taken, ranging from the creation of fifth-year training programs, to the revision of the general education curriculum, to the creation of joint appointments in teaching and the arts and sciences. The state is a good example of one where a lot of thinking about education has been suddenly thrust upon the state by its legislature; how individual districts will respond to such a hierarchically imposed impetus for change remains to be seen.

Connecticut and Pennsylvania offer two further examples of career ladder-initiated induction programs. Under legislation for 1988-89, all new Connecticut teachers will be issued initial certificates, good for one year; renewal, in the form of a six-year provisional certificate, will depend upon successful completion of an "internship" and satisfactory assessment by a team of evaluators. The provisional certificate will become a professional certificate upon completion of a master's program; the professional certificate must be renewed every five years, during which time the teacher must complete 90 hours of graduate training. This year, Hartford is piloting the teacher induction program. Twenty new teachers are involved. Each is assigned to a mentor who is chosen by the Union's Professional Issues Committee (on the basis of his resume and peer recommendations) and trained by the state of Connecticut. In addition, the beginning teacher is assigned a team of assessor educators who observe him six times throughout the year and, in conjunction with the mentor teacher, evaluate the new teacher's capacity to teach. If he is deemed qualified by this panel, he receives a provisional certificate.

Pennsylvania's program is already in place. Under the state board of education's requirements (supported by the state legislature), every school district was to set up an induction program for new teachers by June 1987. The program is part of Pennsylvania's new certification requirements. New teachers receive an Instructional I certificate, good

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for three years. Upon completion of three years teaching, 24 course credits, and supervision under an induction program, they are issued a permanent certificate, which is good for five years and renewable upon evidence of professional development. All induction programs include a mentor relationship between an experienced teacher and a beginning teacher; the role of the program is supposed to be supportive rather than evaluative. The exact role of the mentor is left to the discretion of the district; in some districts, there are five beginning teachers to each mentor; in some, only one. Both mentors and interns receive release time in order to participate in the program.

In contrast to these three state-mandated, career ladder-linked programs, New York offers an example of a state that has established its induction program in response to the needs of beginning teachers, and has left the choice of participation up to the individual districts. In 1986-87, 24 New York districts received grants to develop induction programs; this year, 29 districts have received such grants. Communities are encouraged to experiment with effective techniques, so long as they stay within the framework established by the state legislature. The framework requires that all beginning teachers be paired up with an experienced teacher (mentor) selected by the superintendent from a list drawn up by the local bargaining unit, that both interns and mentors receive release time (20% for the intern; between 10% and 100% for the mentor) in order to observe each other at work in the classroom, and that both specialize in the same discipline. Beyond this, districts are free to experiment. Some have chosen to make the mentor-intern relationship one-to-one; others have found it more effective to assign one experienced teacher to a number of interns. Gerald Mager, the statewide evaluator for the program, attributes the success of the induction program to its voluntary nature and its small-scale implementation.

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Discussion

All of the examples listed above fail to offer a comprehensive answer to the problems of beginning teachers. States such as Georgia and Mississippi (as well as Florida, Kentucky, North Carolina, South Carolina and Virginia) whose programs seek to answer the public's calls for accountability by requiring that all new teachers demonstrate mastery of up to 16 "competencies," are perhaps the most problematic. Relying on a limited number (generally two or three per year) of on-site visits by a team of assessors, the states seek to assure their citizens that their new teachers are capable educators. But, as Wise and Darling-Hammond point out, the air of objectivity that surrounds these evaluations is illusory. The assessment technique assumes that good teaching is based on mastery of a small number of easily quantifiable skills whose presence or absence can be determined by tallying up how many times the teacher being evaluated performs some discrete action on an arbitrary day. Such an assumption is contrary to the conclusions of the 1979 Beginning Teacher Evaluation Study. By perpetuating the public's notion of teaching as a set of straightforward skills, such programs are actually harmful to the advancement of teaching as a true profession.

More positive, but still a long way from ideal, are the programs, such as Connecticut and Pennsylvania (as well as Toledo, Cincinnati, and certain districts in California, among others) that seek to link induction to a larger career ladder. In many ways, such programs are efforts to professionalize the field of teaching by providing recognition to those who have been working in it for many years. Often, they pair beginning teachers with experienced mentors. This, too, is a statement of professionalism, for it asserts that the responsibility for determining what good teaching is should lie in the hands of experienced classroom educators, rather than with outside administrative and state observers. In addition, such programs encourage continued growth for the mentor as well as the inductee.

Unfortunately, mentor programs are often poorly administered; there is little control over the quality of the mentors, who are sometimes chosen simply on the basis of how many years they have been teaching. In addition, the resources necessary for such programs to operate effectively, such as money for release time, are rarely allocated. Furthermore, mentor programs are generally one-on-one rather than whole-school oriented. This is limiting in a number of ways. The beginning teacher is exposed to only one method of teaching and one person's criticism and advice, that of the mentor; this means that his or her induction into the profession is largely personality dependent. The model also suggests that teaching is a craft to be learned as an apprentice, rather than a profession to be learned from a community of practitioners. In addition, mentor programs do not generally produce networks of peer support, either among new teachers, or among the mentors; this means that valuable opportunities for collaborative understanding are lost. Furthermore, mentor programs do not create the kinds of institutional changes that are necessary to support professional practice. Hence, induction programs linked to career ladders in which qualified veteran teachers earn both responsibility and prestige for guiding newcomers through the nuances of teaching are valuable first steps in the move towards professionalism. It is important, however, that we not let them be mistaken for crossing the finish line.

Models

In the last four or five years, at least four programs have been launched that embody elements of a professional practice school. Several more (such as Albuquerque and Puget Sound) are in their planning stages. The four models discussed below avoid many of the pitfalls of strict evaluation and one-on-one mentoring, while maintaining their advantages. All serve to reassure the public of the quality of teaching in the

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schools, and all seek to encourage the continued professional growth of the teachers involved. Their uniqueness lies in the fact that each exists as an entire institution devoted to the task of helping teachers become better at what they do, without taking them outside of the school context. None of them truly represents what we envision a professional practice school would be. We offer brief descriptions of the programs below because they complete the context we have been trying to provide; they show us what people have learned in their attempts to create such programs, and they invite us to consider what sort of environment should be chosen as the site for development of a professional practice school.

Schenley Center. Schenley High School has served for four years as a center for staff development for the high school teachers of Pittsburgh. A fully operating urban high school with 1,000 students, Schenley was charged in 1983 with the additional fourfold responsibility of refining and expanding teachers' instructional skills, increasing teachers' sensitivity to adolescents and modern youth culture, updating teachers' knowledge in their specific content areas, and providing teachers with an opportunity for personal and professional enrichment. As of June 1987, Schenley had provided seminars and staff development for almost all of the city's 900 high school teachers in its "effective teaching" technique. At present, the program is at a transition point; having trained all of Pittsburgh's high school teachers.

Each teacher in the Pittsburgh schools spent eight weeks at Schenley. He was required to undergo a two-week intensive training program to learn Madeline Hunter's "effective teaching" method. For the next six weeks, the visiting teacher was assigned to an already-trained Schenley teacher, responsible for observing the visitor as she practiced the new techniques, and for providing feedback utilizing an instructional and evaluative tool (PRISM).

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The goal of Schenley's program is teacher empowerment and professional development. It was developed with the direct participation of teachers in the district. Through a collaborative agreement all Pittsburgh high school teachers were required to attend Schenley.

One criticism made of Schenley's program is that it attempted to impose one model of good teaching (the Hunter-based PRISM program) on all teachers. Judy Johnston, the program's director, maintains that this served a valuable purpose. That was to give the teachers a common vocabulary with which to discuss what they do in the classroom. Others disagree. Regardless of the merits of PRISM itself, it is important to recognize the limitations of imposing any specific model of practice as the way to teach. Recognition of teaching as a profession brings with it the realization that good teaching is far too complex to develop through imposing a specific model upon an entire district.

Several important contributions to the emergence of professional practice schools are made by the Schenley experience. First, Schenley pioneered the role of the clinical resident teacher. They demonstrated the importance of collaborative planning and the requirement for teachers to be very involved in implementation. Another valuable element of Schenley's program was the opportunity that it offered teachers for collegial interactions with their peers. For the first time, many of the teachers realized that the problems they experience within their classroom and schools are faced by others; to hear about other solutions was extremely helpful to participants. Increased collegiality and more shared problem solving is reported among Schenley teachers themselves. Schenley director Judy Johnston reports that the Schenley Center has provided a common base of experience to the Pittsburgh teachers and has influenced the development of a commitment to school-based staff development and shared decision-making in the district. It has led directly to the Centers of Excellence Project which supports this commitment.

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Jefferson County Public Schools/Gheens Professional Development Academy. The JCPS/Gheens Professional Development Academy is the administrative and intellectual center for a network of change in the Jefferson County Public Schools in Louisville, Kentucky. The mission of the Academy is threefold: to provide leadership for the restructuring of schools as places that are learning focused and success oriented; to provide technical assistance, training, support, and programs aimed at professional development of teachers and administrators; and to serve as a focal point for the movement of Jefferson County into a leadership position in developing strategies for maintaining a high-quality work force in public schools. (Schlechty, in press.) To achieve its mission, the Academy pursues activities ranging from serving as a curriculum resource center for the district to offering inservice programs for school principals.

One of the Academy's projects has been to provide a conceptualization of "Professional Development Schools," as schools that are "staffed in a way that is supportive of the dual missions of a high-quality education for children, and high-quality clinical training experiences for teachers and administrators." ("Professional Development Schools," a description issued by the JCPS/Gheens Academy.) Both JCPS teachers and administrators, as well as Academy staff, worked under the leadership of Phillip Schlechty to define professional development schools, using the teaching hospital as a model. Designed to be exemplars of good practice as well as centers for induction into the school district, professional development schools will consider not only internal affairs, but also their relation to the district as a whole, when they make decisions. Twenty-four Jefferson County schools are involved in the project as pilot sites.

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The schools are designed on the basis of a vision of schooling that assumes that the primary purpose of school is to engage students in knowledge work that will lead to outcomes valued by the community. The goal of school is to have students be successful in such work. The concept builds on the notion of the work in schools as knowledge work, and the organization in which it takes place is designed to model those characteristics of the knowledge industry. The role of the teacher is to manage and facilitate the work of students.

The Gheens Academy work has entailed careful and extensive planning involving the building of consensus among the faculties involved as to the values and standards that were to be embodied in the professional development schools. The 24 schools that are now involved in the process of restructuring themselves to be professional development schools on a voluntary basis have the support of the majority of their faculties and administration. (This, as we pointed out above, is an important factor in the New York induction program's success.) A statement of standards for the professional development school as an exemplar of good practice was agreed to in May 1987. The statement of vision, beliefs and objectives that was agreed to is summarized below. The vision states that the purpose of professional development schools is to help JCPS become a place where every leader is a teacher, every teacher is a leader, and every student is a success. The beliefs include the following statements:

1. Student success is the goal of all school activity.
2. Students need to be challenged and need to learn to pursue difficult tasks and persist with the tasks at which they are unsuccessful.
3. Learning is an active process.
4. Teachers are leaders, and principals are leaders of leaders.
5. The business of the school district and the state is to assure that each school unit operates under optimal conditions and produces optimal results.

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6. Staff success results from motivated and competent people working in an environment that is committed to their success, continuing growth, and development.

The objectives cluster around the following:

1. Shared Vision
2. Shared Decision Making
3. Success Orientation
4. Results Orientation
5. Flexibility; and
6. Support.

(Schlechty, in press.)

The statement is included here because it is important to note that the professional development school envisioned is really based on a reconceptualization of schools from the bottom up. In this important way it is very much like the professional practice school we are describing. The people involved in the Gheens Academy stress the radical changes that are embodied in these principles and they stress equally the long-term process of making those changes. They do not occur overnight nor are they accomplished by fiat. As a model for the professional practice school development process, they are very useful. (Schlechty, P. C., Ingwerson, D. W., & Brooks, T. I., (1987).)

Dade Academy for the Teaching Arts.³ Dade Academy for the Teaching Arts (DATA) is a joint project of the United Teachers of Dade (UTD) and the Dade Public Schools. In addition, the Teacher Education Center (TEC), district planning and advisory committees, the Parent Teacher Student Association (PTSA), and community representatives are involved with the program. It exposes outstanding, experienced teachers who have been given nine-week sabbaticals by their schools to the "state of the art" in

³Interview with Marie Mastropaolo.

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teaching, providing seminars and colloquia in such areas as critical thinking skills, educational technology, gender disparity, and motivational techniques for a changing society. Externs, as participating teachers are called, are also encouraged to pursue research and produce written material during their sabbaticals. The program, according to its description, is designed to "energize, revitalize and enhance the professionalization of teachers."

This is DATA's first year, and it currently operates out of two trailers on the campus of Miami Beach Senior High School. A staff of eight teachers with reduced loads serve as the Resident Teachers, and a group of 16 Adjunct Teachers are "roving ambassadors of good teaching," that is, substitutes for the externs during their nine-week sabbaticals.

DATA meets many of the criteria of a professional practice school. It is committed to providing innovative professional training and is premised on the status of its faculty as professionals. It involves many members of the community and is connected to the school system as a whole. DATA externs might perform research or develop educational curricula.

In crucial ways, however, DATA is not a professional practice school. Most importantly, it is not a school. Although it aims to provide quality teaching of students by renewing the commitment of already excellent teachers, it is not directly involved in instruction. Research plays only a small part in DATA's conception. Finally, the program does not aim to define standards for induction into the profession.

DATA is a powerful example of how a district's commitment to teacher renewal can produce drastic changes. It is encouraging to see that an entire community has taken the professionalization of teachers seriously. Aspects of DATA's program, such as its emphasis on exposing experienced professionals to new research, might easily be incorporated into a professional practice school.

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Alternative Professional Teaching Project (Wheelock College and Edward Devotion School in Brookline, MA). The Alternative Professional Teaching (APT) program is a collaborative effort between Wheelock College and the Edward Devotion Elementary School in Brookline, Massachusetts, that seeks to provide an alternative to the traditional student teaching model. Three Wheelock master's degree candidates serve as full-time intern teachers in a restructured third- and fourth-grade classroom, under the supervision of four members of the Devotion faculty. This experience serves as their induction into the profession by providing them with the opportunity to teach in a carefully controlled nonthreatening environment under the supervision of experienced teachers who provide both theoretical and practical support and criticism.

There are characteristics of the APT program that are like our conception of a professional practice school. The faculty team is responsible for the design and delivery of the intern's graduate seminar. Other school faculty are often engaged to teach these seminars. The time is structured to allow for three planning sessions for the team every week. Wheelock and Devotion faculty share supervision of the interns. Elements of group practice, support for collegiality, and faculty decision making are evident in this project.

Participants emphasize the impact the project has on the Devotion faculty — providing them with an opportunity to "grow as teachers without leaving the profession." The APT project is described as "[Massachusetts'] first elementary level professional development school" with a commitment from the state to encourage the development of others.

It may be a useful model for building professional practice schools incrementally as "schools within a school," a strategy that is being used, for example, by the Coalition for Essential Schools.

Discussion

Although these state initiatives and models illustrate the concern for reform in teacher education and the need to establish a systematic induction process for the teaching profession, with the exception of the Gheens Academy and perhaps the Wheelock/Devotion School, there is little about them that speaks to the need to reconceptualize the school and the teaching profession. With the exception of Gheens, they do not focus on the school as the institutional authority base for the profession or, for that matter, as the base of responsibility for clinical teacher education.

The state-mandated induction programs provide a confusing and sometimes conflicting environment for the development of professional practice schools. One important issue to bear in mind is the distinction between induction into the profession, induction into employment, and induction for certification. The states that have a mandated induction program for licensure put the employer in the conflicting roles of employer and state evaluator. Some confuse the evaluator role of the employer with the supportive role that is really necessary for the novice teacher. They are, for the most part, heavily based on the mentor model, which is itself grounded in a notion of teaching as craft, and they tend not to have a whole-school, institutional base for induction. There is little control over the quality of experience that the novice may have and a great variation in the preparation and qualifications that the mentor may have for the role. Additionally, conditions under which mentoring is done vary considerably.

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The professional practice school as we have conceptualized it is a preemployment clinical education experience. It is meant to be induction into the profession and is therefore controlled by professional faculty. It may be thought of as a qualification for full certification, with provisional certification a prerequisite for participation. Teaching faculty (who at some point will be board certified) will attest to the intern's ability to meet preestablished standards and to the intern's having successfully participated in predetermined activities and experiences.

There is a difference between top-down, technically oriented induction programs, largely implemented through individual mentors, and the professional practice school with institutional responsibility for teacher induction, professionally controlled and characterized by induction for professional, reflective practice. The difference reflects the tension between the reform agenda for restructuring schools and professionalizing teaching, which requires grassroots determination, and the tendencies of states (the key implementers of reform) to control through mandates, regulations and requirements. This can be an obstacle to developing these institutions. On the other hand, the recognition, in some states, of the important changes that professional practice schools can support is encouraging. The same is true in certain districts. Collaborations are now being planned in Albuquerque between the teachers' union, the University of New Mexico, and the school district, and in three districts in Indiana involving the teachers' unions, school districts, and the University of Indiana. The experiences of the Greens academy in Jefferson County, Kentucky, are very significant steps in the implementation of this concept.

What is certain is there can be no significant change in schooling without reform in teacher education. Research and experience in teaching and in other professions as well point to the central importance of the

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clinical education of the practitioner. Up until now, this experience has been at best idiosyncratic — sometimes excellent, sometimes unproductive. It has never been the major purpose of any of the institutions that had a part of the responsibility for it — not the university, not the school district, and not the state. (Schlechty, informal communication.) Professional practice schools give to clinical education the importance it deserves and places responsibility for it in the school site, with professionals, where it belongs. It combines the expertise and interests of the university, the district, and the profession in the interests of ensuring professional education.

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5. TOWARD REDEFINING MODELS OF CURRICULUM AND INSTRUCTION FOR STUDENTS AT RISK

by Beau Fly Jones

The current reform movement is ripe to address the needs of two types of at-risk students who really can't function in American society: disconnected youths and marginally skilled students. The concept of schooling itself needs to be expanded and coordinated with the work of many other organizations and agencies. More meaningful curriculum, instruction, and assessment, especially to encourage higher-order skill development, are called for. In addition, new ways to structure classroom organization, provide special services to students, and prevent major disaffection need to be developed. Such initiatives must be supported financially and legislatively, but also judged according to their success in terms of influencing students' lives. In order to do this, those practices that hold promise for at-risk students—like teaching thinking—need to be pursued, implemented, and researched further. No better climate for examination and experimentation may be available to American education for a long time to come.

The winds of change are finally here, heralding a new wave of reform that seeks sustained, fundamental change in schools, especially for students at risk. Phrases like "school renewal," "radical change," "parental/community involvement," "business/school partnerships," "systemic change," and "restructuring" are indeed refreshing and heartening. There is even an increasing focus on program improvement with a strong emphasis on curriculum and instruction, among the many initiatives and proposals supported by schools, state education agencies, and national groups.

Despite all these good recommendations for changes for students at risk, there are several concerns. First, there seems to be a lack of attention to the diverse needs of two types of at-risk students: (1) disconnected youths who are fundamentally alienated from basic American values and from economic and educational opportunities, and (2) semiskilled students who succeed in the basic skills programs assigned to them but who cannot read, write, or solve problems with proficiency and, therefore, can live only on the edges of mainstream society.

Second, given these problems, what can we do to address them? I believe that the concept of schooling needs to be expanded to include

both direct instruction and support services in areas traditionally reserved for families and other social agencies. This approach also calls for the coordinated involvement of parents, senior citizens, civic workers, and the business community in schools as learners, teachers, role models, and providers of support services. Thus, in this conceptualization, schools serve multiple functions for students and for the community as learning centers for health care, child care and parent training, problem solving, and decision making in addition to offering instruction in the traditional disciplines.

Third, to what extent is the approach outlined here consistent with existing reform agendas? There is definitely support for most of the ideas in this extended-schooling approach in many recent reform initiatives and designs for future schools, but there are important gaps and limitations in the reform literature, especially regarding changes in curriculum and instruction.

Fourth, what are implications of the reform movement for curriculum and instruction? Specifically, it is argued that existing definitions of the role of students, teachers, instructional leaders, teacher educators, and curriculum and instruction constitute a poor foundation on which to support the reform agendas; new definitions are suggested to carry forward the intent of this wave of reform.

AT-RISK STUDENTS OVERLOOKED BY RECENT REFORMS

Who are the students, or would-be students, among the severely disconnected and the ranks of the semiskilled? What are their chances of leading productive lives within the context of mainstream America? How do the needs of these students for membership in the larger community and social bonding as well as thinking skills relate to the new reform movement? These questions guide the organization of this section.

Severely Disconnected Youth

The homeboys call him Frog. . . . He rakes in \$200 a week selling crack, known as "rock" in East Los Angeles. He proudly advertises his fledgling membership in an ultra-violent street gang: the Crips. And he brags that he used his drug money to rent a Nissan Z on weekends. He has not yet learned how to use a stick shift, however, and at 4 ft. 10 in. he has trouble seeing over the dashboard. Frog is 13 years old. (Lamar 1988)

Frog is an example of the growing number of severely disconnected youths whose creative energies and entrepreneurial talents are adapted to survive in the underclass culture of drugs, street gangs, violence, crime, and prostitution (see also *Newsweek* 1988). While most children are at school, Frog and his peers are entrenched in the cross-fire of large-scale

political and corporate structures associated with the sale of drugs and arms nationally and internationally. Indeed, the powerful, rapid-fire Uzis and other weapons available to these youths seem far more frightening than the sawed-off shotguns and fire bombs of the Weathermen and race rioters of earlier decades. In a word, although these disconnected youths may be highly skilled in the jobs that define their world, they are *unskilled* in terms of the skills and knowledge needed to compete in mainstream occupations, and they are dangerous to society and, ultimately, to themselves. Moreover, their numbers are increasing; *Newsweek* (1988) estimates that the population of this underclass, which is largely minority, is about 2.5 million, roughly three times what it was in the 1970s.

Nor are all violent youths found emerging from poverty in our cities. Violent crimes among wealthy youths seem to be on the increase as well (Schorr and Schorr 1988). Drug use, drug dealing, alcoholism, violence, crime, and abuses arising from these activities have their counterparts among the very wealthy in cities and suburbs. Although the social and economic characteristics of these youths may be very different from those of inner city youths, they, too, are disconnected from their families, schools, religion, and other conventional social institutions. Thus, although these youths are not disadvantaged, we must consider their alienation as a parallel problem.

The needs of these disconnected youths are tremendous. Some of them need nourishing food, shelter, clothing, and medical services, especially if they are homeless, neglected, or abused. Many lack access to adequate and caring support services that would help them cope with poverty, personal distress and disaffection, family problems, peer pressure, and the dangers of the street. They need a curriculum that teaches them how to solve the problems they face and reconnects them to values for critical literacy and a level of meaningful participation in mainstream educational, political, and social processes. They need opportunities to be reconnected to jobs that have meaning, jobs that will provide them with hope for the future and chances for social mobility now unavailable to them. But, most important, they need access to people who care about them: people who have a stake in their future, people who believe they can learn to be successful citizens, workers, and members of the community.

The causes of their alienation and disconnection are complex and deeply rooted in the social, economic, and political fabric of the broader society—and certainly extend far beyond the scope of educational institutions. Educators clearly cannot deal with all of the problems; we must consider who is responsible for the education of these youths and what *can be done* by schools to provide better support services and education.

However, since these youths are so disconnected, I fear that their educational needs may fall through the cracks of the reform movement. Because they have committed crimes, some of these youths are in penal institutions that generally will not provide effective support services or education other than some basic skills and rudimentary training in a few trades. Consequently, when they leave, they may at best be able to read and write with minimal competence, but they are still disconnected from the mainstream of economic and political opportunities—not to mention the further disconnection caused by the crime and corruption that occurs inside penal institutions among the staff and the penal population. Because these youths are dangerous, many educators assume that they do not belong in school and plainly do not want them. And because they are largely dropouts, they fall outside most of the legislation intended for schools, except for dropout prevention programs, alternative schools, and reentry centers, which may be useful but are not sufficient.

More fundamental changes are needed to reclaim and harness into more productive channels the energy and creative talent that flow from these angry youths in the form of violent actions against society and, ultimately, against themselves.

Semiskilled Students

Harlow is a student at an inner-city high school that is rapidly improving its curriculum. However, when I met Harlow, he was essentially what I would call a semiskilled student. Although he was clearly bright and made good grades by his school's standards, he had little idea how to read or write with understanding, how to study complex expository materials, or how to solve academic problems beyond those in the book. His strategy for reading and studying was to read the questions at the end of the section or chapter and "scam" the text for the answers, a strategy that is typical of many learners (Anderson and Smith 1987). Harlow had no idea how the parts of a chapter were related, even though he could decode the words quite well and answer the questions with some accuracy. As of the second half of his sophomore year, he had never studied a whole chapter because he had never had a test covering more than a few pages or activities; nor was he ever required to integrate information from several chapters or units.

In contrast to Harlow, Marla attended a good high school in an all-white suburb that ranks high in number of students graduating and attending college. Although she was very bright and showed considerable potential in art and creative writing, she was tracked into lower-level classes because she was weak in mathematics and was often an impulsive learner. She was one of those students who would work hard

and excel at tasks she found interesting and relevant to her life, but she was very undisciplined in her study habits, if the task had little immediate meaning. Marla also had a very low self-image and harbored a deep-seated hatred for school, stemming in part from the humiliation she felt at being in lower-track courses, in part from the watered-down curriculum she was offered, and in part from the social structure linked to the tracking system. After years of "fighting the system," Marla finally graduated but showed her ultimate bitterness by not attending her own graduation. Now she is struggling with the hardship of living on poor wages and coping with the realities of her limited occupational options. The irony is that if she had failed a few courses, she would have been offered a range of special services and instruction that might have changed her pattern of low achievement. On the other hand, when such services are offered in the context of tracking, there is great stigma associated with using them, so the services might have been just one more thing for her to fight.

There are literally millions of students like Marla and Harlow who have good, even excellent, capabilities and potential, but who may or may not finish high school and probably will not be able to compete for challenging jobs with reasonable earnings. Without intervention, these students at best may compete for the rapidly decreasing number of semiskilled jobs that require basic skills; but they could not compete well for the range of service jobs and information-processing occupations that require problem solving, skilled literacy, and knowledge of technology. At worst, they may fall into the ranks of the underclass. With appropriate intervention, they may approximate the patterns of achievement of more advantaged students (Levin 1976; Neisser 1986; Rohwer 1971).

While I believe other types of students at risk would benefit from the fundamental changes brought about by reform, in this chapter I chose to focus on semiskilled students for several reasons. First, I believe that these students might escape being defined as students at risk: Harlow, because he makes good grades in a school with relatively low standards; and Marla, because by tracking her into low-level courses, the school feels that it is serving her needs. Second, I believe that there is something dreadfully wrong with a definition of basic skills that does not include the critical literacy and problem-solving skills that students need for tomorrow's jobs. Thus, I would seriously question the success of school improvement efforts that move students at risk from the 30th percentile to the 40th, or to some other low level of achievement that leaves them lacking in proficiencies for the twenty-first century (Levine in press). Third, I seriously question the social ethics and value of segregating low-achieving students into homogeneous classrooms when we know how devastating this can be to their self-concept and to their

chances for subsequent education and employment (Jones in press; Oakes 1985).

In sum, it is argued that the reform movement might overlook students at both extremes of the academic parameters that define students at risk: disaffected youths who have failed school and dropped out, and semiskilled students who are marginally successful in terms of acquiring basic skills, but who are not equipped to think effectively and solve problems in a society oriented to information processing and "high-tech" occupations. Both types of students exist in cities and suburbs, but special attention is paid to the increasing numbers of the disconnected in inner cities who are more likely to suffer from poverty and disconnection from the full range of choices and responsibilities in our society, and especially from traditional family and school connections. Ironically, the reform movement may overlook disconnected students because their problems are so great, whereas it may overlook semiskilled students because they are successful in the minimal competencies required by low-level tracks and reform initiatives not aimed at cognitive development. We must attend to the needs of these students because the costs to themselves and society of not doing so are far too great.

SCHOOLS WITH MULTIPLE FUNCTIONS.

Defining the Problems

What is done about students at risk depends in part on how the problems are defined. For students at risk who are disconnected, the first problem is not merely, or even primarily, lack of education. Rather, it is the total isolation of their lives from the traditional connections to the prescribed culture: stable family systems, religion, schools, gainful and rewarding employment, social and health care agencies, and legitimate political processes. It seems highly unlikely that any effort to educate these youths can succeed without first dealing with this isolation and alienation from society and with the poor physical and mental health associated with poverty, drugs, and sexuality that is both abusive and uninformed.

At the same time, while it has been useful to call attention to two types of students at risk who may be overlooked in the reform movement, the issues that apply to these students may apply in varying degrees to all students at risk. That is, we cannot readily distinguish who is and is not disaffected. Certainly, the violent youths in the adolescent underclass and the wealthier strata of society are disconnected in the extreme, but all students at risk are disconnected to some degree. In fact, the very term *at risk* connotes the risk of being disconnected from

mainstream social and economic opportunities and political processes. Therefore, we should not try to differentiate among categories of students to provide different types of services and education based on poverty or family status. Intact families may be as dysfunctional as families with a single head of household; on the other hand, single-parent families may be highly functional.

Reconnecting and Educating Students at Risk

Instead, the fundamental support services and educational goals for students at risk academically should be defined on the basis of their needs. And the goals of schooling for students at risk should be threefold: (1) to reconnect them to the opportunities and responsibilities in America from which they have become isolated; (2) to provide the skills and knowledge they need to acquire, use, and produce information meaningfully and critically, as well as to solve real problems related to their lives and society's goals; and (3) to teach them to become independent learners as well as learners in collaborative contexts.

Defining the goals of schooling for students at risk in terms of reconnecting *and* educating as separate but related functions has important implications for policies and practices relating to curriculum and instruction. It is not within the scope of this chapter to consider all of these, but the following provisions are outstanding:

- *regarding the curriculum*: more meaningful learning in basic skills and the content areas, focusing on higher-order objectives, critical and creative thinking, learning how to learn, problem solving, and conceptual change; greater access to well-written literature, textbooks, and instructional materials; new guidelines and curricula for areas such as parent effectiveness training for teenage parents, misconceptions in mathematics and science, comprehension monitoring, collaborative learning and problem solving, decision making, intergroup relations and governance, health care, developing a repertoire of cognitive strategies and organizational patterns, and cognitive approaches to learning a second language (e.g., Chamot and O'Malley 1987).
- *regarding instruction*: more instructional strategies formulated to involve students in the learning processes, to link new information to prior knowledge, to represent and organize new information in oral language and in prose, to transfer and apply what is learned to new areas, and to use what is learned to solve problems.
- *regarding assessment*: new tests for higher-order thinking, for use of specific thinking/learning strategies and organizational patterns, and for potential to learn. Many of the educational problems that exist today, especially for students at risk, are the result of using

standardized tests that focus on multiple choice formats and the recall of isolated facts.

- *regarding building and classroom organization*: more effort to integrate low-achieving students physically within the life of the school among students with differing talents and capabilities, rather than isolating them in tracks, rigid ability groups, and pullout programs. Strategies for doing this might include grouping for different purposes (e.g., Alvermann in press), cooperative learning in heterogeneous classrooms, flexible scheduling, group work involving intensive participation and interaction (Cohen 1986), peer tutoring and cross-age tutoring, smaller class sizes, and the use of instructional strategies such as brainstorming and discussion designed to share information.
- *regarding Chapter 1 services*: more use of funds for schoolwide instructional services and programs available to all students who need them, regardless of their family status, race, ethnic origin, or socioeconomic class; less use of pullout programs that focus on basic skills and recall of isolated facts; better coordination and accountability for students in remaining pullout programs.
- *regarding other support services*: better access to more support services to address issues of physical and mental health, poverty, family living, employment, and housing. These support services could be provided by better coordination of available services from the city and state or by inclusion of such services with school campuses. In either case, they should become part of the curriculum and instruction options for students at risk.
- *regarding dropping out*: more emphasis on prevention in terms of providing meaningful school experiences and more opportunities for "second chances" within schools. As it stands now, second-chance education is often left to interventions in private schools or within the school system in reentry centers and alternative schools, which are somehow disconnected from the heart of schooling. While such measures may be highly functional in the absence of other options, one could conceptualize schools as offering such a variety of services and programs that dropouts and adult illiterates could be educated without being isolated from the mainstream of school life.

EXISTING REFORM AGENDAS: BARRIERS AND DESIGNS FOR CHANGE

Barriers to Excellence

There is much in the new wave of reform agendas to support the vision of schooling sketched above. One of the earliest reform agendas

focusing directly on students at risk came from the National Coalition of Advocates for Students (1985), which identified major causes of alienation and poor performance. According to this report, barriers to excellence begin with the various forms of discrimination that constitute both differential treatment in social and legal matters and differential access to educational, economic, and political opportunities. Barriers in school include inflexibility of school structure, abuses of tracking and ability grouping, misuses of testing, narrowness of curriculum and teaching practices, limits of vocational education, lack of support services for youth, lack of early childhood programs, and lack of democratic governance. Additionally, Parnell (1986) argues that the academic and vocational desert of American education is the high school general education program because learning then is not focused as it is in college-bound programs and vocational education programs.

Designs and Guidelines for Sustained Fundamental Change

At the time that the Advocates for Students' report was written in 1985, there were virtually no reform agendas that addressed those barriers. Now there is increasing recognition that the entire educational system is broken, not to be repaired through piecemeal efforts and quick fixes. Today there is an abundance of important reform models and guidelines that do address these barriers directly, calling for sustained fundamental changes in schools. Some of these are national reports, such as the Carnegie Foundation's (1988) special report which states:

America must confront, with urgency, the crisis in urban schools. Bold aggressive action is needed now to avoid leaving a huge and growing segment of the nation's youth civically unprepared and economically unempowered. This nation must see the urban crisis for what it is: a major failure of social policy, a piecemeal approach to a problem that requires a unified response. (p. xv)

Based on this analysis, the report defines four priorities that address the problems of urban schools:

- to affirm that every student can succeed
- to build an effective governance arrangement
- to introduce at every school a comprehensive program of renewal
- to create a network of support beyond the school.

Within this framework, the report discusses the importance of a core curriculum that has both coherence and connections to real-life experiences and the opportunity for flexible arrangements, including the concept of a Transition School that would allow students more time and options for work and study outside the walls of the school. Indeed, it is

encouraging to learn about the number of plans offering flexible time and work options, often educating selected youth on community college campuses, as well as involving parents and businesses directly in schools. Examples of plans described in this report include the Middle College High School in Queens (New York), in which high school students are educated on a college campus; Cincinnati's Occupational Work Adjustment Program, which allows students individualized instruction, counseling, and income from work coordinated by the school; and the national Cities-in-Schools project, which provides good counseling and help with jobs, health, and family problems.

Additionally, there are some fascinating proposals and plans for specific schools and school systems that call for sustained fundamental changes.* One of the most promising programs is provided by the Corporate/Community Schools of America (1988), which, among other things, closely coordinates health, social, and family services offered by the city to meet the needs of students without their going through as many layers of bureaucracy and delay as is normally the case. Additionally, educational, business, community, and union leaders work together to promote change. This plan, while entirely supported by business contributions, is devised to function on the budget normally allotted to public schools and is devoted to working with urban schools to incorporate its principles.

The Ohio Reading Recovery Program also has achieved dramatic successes and is being adopted in several states (see the National Diffusion Network Newsletter 1988; Pinnell et al. 1987). This program targets the poorest readers in the class for one-to-one planned lessons for 30 minutes each day. Each lesson includes reading many "little" books and compositions. Reading and writing instruction is approached holistically and is designed to teach children strategies for decoding and comprehension monitoring. Each child participates in the program until he or she has developed strategies for independent learning. Then the strategy is discontinued, and another child enters the program.

Finally, I would like to mention the recent movement for accelerated learning promoted by Levin (1987a, 1987b) and others (e.g., Cooper in press; Levine in press; Slavin 1987). For example, Calfee's (1988)

*See descriptions of specific school projects throughout the Carnegie Foundation (1988) report. See also specific school reports such as those by Dayton Public Schools (1988), which will establish an alternative school and a middle college arrangement for overage high school students, and by Cincinnati Public Schools (1988), which will begin an alternative schools program for potential dropouts with highly innovative, theme-based curricula for the ninth and tenth grades. For additional summaries and descriptions of innovative dropout prevention programs, see Fennimore (in press) and the Urban Superintendents Network report (1987). For national networks and models for restructuring schools, see the February issue of *Educational Leadership* (1988) and the National Education Association's *Visions of School Renewal* (1987), which contains numerous principles for change as well as several samples of flexible scheduling.

proposal for schools for the year 2000 focuses directly on effective curriculum and instruction, and espouses many of the values outlined above in the conceptualization of schooling for students at risk. Calfee and his colleagues envision a major national network of schools to implement a cohesive model of critical literacy, an interactive learning environment for the classroom, the school as the center of continuing inquiry, and stronger linkages among school, home, and community resources.

In general, common themes seem to connect many of the new reforms. They typically call for sustained and fundamental changes to reconnect students to the world of work and the broader community and to provide more meaningful education. Most of them also call for more flexible scheduling, individualized instruction, and low student-teacher ratios, especially for the rich array of highly innovative dropout programs and dropout prevention programs. There is also very strong support for decentralizing schools in order to reduce the size of large urban districts and to provide school-based management with parental involvement and sometimes with parental or community control over school budgets and the hiring of principals. Thus, in important ways, these reform initiatives are asking schools to become microcommunities in which the school serves as the hub of the community, with many of the services typically provided by families and other agencies to be provided through schools or physically within them. At the very least, these proposals no longer see the purpose of schools for students at risk as merely providing an education. Instead, they define schools in terms of multiple functions to educate and reconnect students to the heart of society.

Legislative and Financial Support

Interestingly, massive national and state legislation supports the reform focus on improving instructional programs for students at risk and incorporates many of the initiatives discussed above. New Chapter 1 legislation, for example, states that schools that do not show substantial progress in helping students at risk must work with local education agencies (LEAs) to modify their instructional programs. If this locally developed plan does not yield significant progress, then the LEA must work with the state education agency (SEA), the school, and the parents to formulate a joint plan of action to improve the instructional program. Additionally, Technical Assistance Centers for Chapter 1, initially authorized for assistance in program evaluation, are now authorized to serve as change agents. Specifically, they are to assist schools with program improvement, including identifying alternative curricula and effective instructional strategies—activities formerly forbidden by law! And there is provision for staff development as well as a new Specialty

Option on Curriculum and Instruction. (For a good, concise description comparing the legislation contained in House Rule 5 to the old law, see the special supplement to *Education Daily* 1988.)

This legislation is supported strongly by the Council of Chief State School Officers' recent policy titled "Assuring Educational Success for Students at Risk," which was unanimously endorsed by the Council. This policy specifies that state laws should provide the supporting health, social welfare, employment, housing, safety, transportation, and other human services which, together with the educational programs, are reasonably calculated to enable all persons to graduate from high school. This statement was further backed by a paper expressing the personal commitment of individual chief state officers to radical reform in elementary and secondary schools. Specifically, they referred to possible "state takeovers" of financially "distressed" school districts, support for student transfers from low-achieving schools or districts to "successful" locations elsewhere, and widespread utilization of knowledge gained from effective schools and effective teaching research as well as reduction in the concentration of low-achieving students at low-achieving schools (in Levine in press; see also Council of Chief State School Officers 1987).

Along with this support from national and state legislation for reform, private foundations and the business community have made significant contributions. The Casey Foundation, for example, recently gave \$10-million grants to six schools that would provide some matching funds to design schools of the future, and the Carnegie Foundation's (1988) special report discusses numerous other examples. Moreover, articles abound in business journals, such as the *Harvard Business Review*, and in national newspapers describing the recent involvement of business in supporting education.

Limitations of Existing Initiatives

These reports demonstrate courage, reflection, and insight, and will undoubtedly decrease dropout rates while increasing attendance, academic achievement, and college attendance for many at-risk students. However, these reports have limitations—sometimes in what they say, and sometimes in what they omit. A major concern is the focus on basic skills, rather than on developing critical literacy, numeracy oriented to problem solving, creative thinking, and conceptual change. Similarly, there seems to be little realization of the dysfunctions of instructional practices associated with a curriculum of basic skills in regular classrooms and pullout programs such as mentioning, boring drill and practice, questions focused on isolated recall of facts, fragmented learning and instruction, dependence on unsupervised seatwork, and exercises that

have no meaning (Allington in press; Ascher 1987; Peterson 1987). Equally important, this emphasis on basic skills seems to be based largely on assumptions drawn from effective schools and effective teaching research that need to be revisited in the light of recent research on expert teaching and cognitive science (see below).

Another set of problems in these current reform proposals relates to the role of building and classroom organization. On the one hand, there is some effort in a few reports to see tracking as a barrier to achievement. There is also a widespread emphasis on the need for flexible scheduling, particularly in high schools. On the other hand, many reports do not refer to the problems of segregation and poor-quality instruction that arise from tracking, ability grouping, and pullout programs for low-achieving students (e.g., Peterson 1987). It is imperative that the reform movement relate to the increasing body of literature showing that such arrangements typically produce differential access to educational opportunities in terms of instructional materials and instructional strategies (Allington in press; Ascher 1987; Good and Marshall 1984; Peterson 1987). That is, high-ability students consistently receive more active instruction, more comprehension instruction, and more opportunities for comprehension monitoring. In contrast, teachers of low-achieving students tend to assume that these students cannot attain higher-order objectives and consequently provide mainly drill and practice, decoding, and algorithms for rote memorization (see Jones in press; National Coalition of Advocates for Students 1985; National Education Association 1987; Oakes 1985; Salmons 1988; Slavin 1986). These problems are compounded by the lack of coordination between Chapter 1 instruction and that of the regular classroom, leading to fragmentation of learning and instruction and to lack of accountability for student programs (Allington in press; Ascher 1987; Gartner and Lipsky 1987; Peterson 1987).

While it is exciting to hear about reforms for school-based management, they could be implemented in ways that are just as disastrous as centralized structures for governance and administration are. Specifically, there is a high potential that the parents and community members who sit on advisory councils will not be informed about curriculum and instruction, and will have heavily vested interests in basic skills, drill and practice, and the recall of isolated facts. Some may even believe that efforts to teach thinking are a form of brainwashing. More important, some degree of centralization in the area of curriculum and instruction at the elementary grades may be needed to assure continuity of instruction for the highly mobile students in urban schools. It is interesting to note, for example, that while most school systems are moving toward school-based management, Detroit moved toward more centralization when community/parent-based administrative layers

were removed (Michigan Public School Act, no. 71, April 14, 1982). However, parent involvement continues to remain high at the school level.

Additionally, there seems to be little reference to the need for different kinds of tests. It is axiomatic that tests drive instruction, and many of the recommended reforms will require massive changes in testing to assess higher-order thinking as well as students' learning potential and thinking/learning strategies. In assessing learning potential, it is not students' past experience that counts; rather, it is their ability to respond to instruction. One measure of this is the Learning Potential and Assessment Device developed by Feuerstein and his colleagues (Feuerstein et al. 1985). Learning strategy tests assess students' knowledge and their use of specific learning strategies (for a discussion of the Learning and Study Skills Inventory developed by Weinstein and her colleagues, see Weinstein and Underwood 1985). However, much more research needs to be done to develop a diversity of measures for all grade levels and for assessment of conceptual understanding in the content areas. We also need more training for teachers and publishers so they can develop tests for use in the classroom that focus on higher-order thinking (see Arter and Salmon 1987; Stiggins, Rubel, and Quellmalz 1986).

Finally, concerns about staffing were expressed during a recent planning meeting in Chicago on restructuring schools, sponsored by the North Central Regional Educational Laboratory. Both teachers and administrators were worried about the recruitment of minority teachers, evidence of increasing preferences for white teachers not to teach minority students, the commitment and quality of instruction among those teachers and administrators nearing retirement, and the lack of understanding generally of the characteristics of different types of at-risk students.

To summarize, the reform movement has identified numerous barriers to excellence and equity, and has proposed a rich array of designs for tomorrow's schools, focusing on governance structures, scheduling, parent/community relations, more meaningful curriculum, and more effective instructional strategies. Moreover, there is substantial support from national, state, and local legislators for new reforms as well as increasing support in the business community.

Concerns about the reform movement center on widespread assumptions about curriculum and instruction. Specifically, it is argued that basic skills instruction, pullout programs, ability grouping, and tracking are barriers to effective instruction for low-achieving students. Moreover, in the light of recent research, we must reevaluate models of effective schools and effective teaching, as well as who teaches thinking and what is taught.

DIMENSIONS OF CHANGE

Support for reforms for students at risk marks a major turning point for American education. But we must take care that this new wave of reform focuses directly on changes in curriculum and instruction for low-achieving students. We must also build the foundation for these changes on valid models of effective learning, teaching, and instructional leadership. In the final analysis, schools and their governance structures are essentially shells or frameworks within which curriculum and instruction, the heart of schooling, take place. As we remodel our notion of schooling, so, too, must we remodel our concepts of learning, teaching, and leadership that will carry out the ultimate intent of the reforms for these students. We must keep in mind constantly the goals of the reform movement—namely, reconnection to the larger society, cognitive development, and empowerment to live and work in society peacefully and collaboratively.

Vision of Learning

Traditional Models

The current emphasis on teaching isolated basic skills through extended periods of drill and practice can be traced back to behaviorism as a focus of psychology (Resnick 1987). Specifically, behaviorists argued that learning occurred through repeated associations between a stimulus and a response. Research indicated that learning was more effective when practice and feedback were distributed or spaced over different periods of time. Additionally, behaviorists assumed that an individual's cognitive capacity to process information was limited to approximately seven discrete items; therefore, instruction should be presented in small chunks and steps. Thus, the learner was conceptualized as a passive person on whom information was essentially imposed by repeated associations. According to this view, all the learner had to do was decode the words (because somehow the meaning was "in" the words) and be exposed to various associations between stimuli and their appropriate responses.

Recent Models of Learning

It would be impossible to review here the deluge of research emerging from cognitive psychology, as well as research on specific subjects that challenges the behaviorist point of view. This research, which began in the early 1970s, has essentially stood behaviorism on its head by emphasizing the importance of what happens in the brain between the stimulus and the response. Today's vision of learning conceptualizes the model learner as someone working actively to construct meaning, to plan

strategically, to monitor comprehension and problem solving, to integrate new information with prior knowledge, and to apply and use what is learned. In this vision, comprehension is defined as an interaction among the reader, the text, and the context, and memory is conceptualized as a network of knowledge structures that relate information in many dimensions or attributes. Learning occurs as the learner calls upon a repertoire of cognitive and metacognitive strategies to represent and integrate the new information and to link it to these networks.*

Cognitive psychologists recognize that there are differences in aptitude among high- and low-achieving students. However, they consistently support teaching at-risk students a repertoire of cognitive and metacognitive strategies such as problem solving, representation, elaboration, summarizing, clarifying, using graphic organizers and organizational patterns, comprehension monitoring, self-questioning, verbal self-instruction and self-regulation, hypothesis generation, and study skills (Jones, Tinzmann et al. 1987; Palincsar and Brown 1985; Peterson 1987; Schoenfeld 1988; Singer and Donlan 1982; Weinstein and Mayer 1986). In fact, they argue that training in generalizable cognitive strategies has more powerful and longer-lasting effects than does teaching discrete cognitive skills (Bransford et al. 1986; Corno and Snow 1986). This is particularly true for students at risk. However, there is substantial evidence in this same literature that students at risk may *not* apply these strategies spontaneously without sustained, explicit strategy instruction.

An example of such a strategy is one that my colleagues and I now refer to as S2ROS: (1) *Survey* the text, looking for specific types of text structures; (2) *Represent* the structure (organizational pattern) in a mental picture or graphic; (3) *Read* to refine or modify the mental representation, clarify what is unclear, and monitor comprehension; (4) *Outline* the text using graphic organizers that reflect the text structure; and (5) *Summarize* the outline, using the graphic organizer to structure the summary (for a description of these procedures, see Jones, Pierce, and Hunter in press). In this strategy, the learner uses various graphic outlines to help represent, outline, and summarize the information. Organizational patterns used in this strategy include theme and supporting statements; compare and contrast; sequence of events, including stages in a life cycle; and problem and solution (Jones, Tinzmann et al. 1987; see also Jones, Pierce, and Hunter in press). What follows is an example of a model learner applying this strategy to a history text:

*In reading, see Anderson et al. (1985); Jones, Palincsar et al. (1987); Paris, Lipson, and Wixson (1983); Pearson and Johnson (1978); and Tierney, Readence, and Dishner (1988). In mathematics, see Linquist (in press); Schoenfeld (1985, 1988); Silver (1985); and *Educational Psychologist* (1988). In science, see Anderson and Smith (1987); and Carey (1986).

He reads the section title: *Why Did the English Come to the New World?*... "Hmmm, there must be reasons why the Englishmen came to the new world." His finger moves to the first subtitle, which he reads: *America Offered the Chance to Make a Better Living*. "There's a reason why they came to the new world." His finger then moves to the second subtitle: *America Offered Freedom of Worship*. "That's also a reason why they came to the new world." His finger moves to the third subtitle.... He looks up to reflect. "So from here I can make a spider map." He draws an imaginary spider map with a central node on the pages of his textbook. "*Why did the English come to the new world?* goes in the middle, the central node of the map. *Freedom of worship, better living, and possibility of sharing in government* go on the other sides." He draws three imaginary legs of the spider map.

He looks at the questions at the end of the section.... (2) *What were some of the important reasons that brought English settlers to the new world?* "Well, I just read three or four reasons that brought English settlers to the new world." (3) *What was a trading company?* "Well, I don't know what a trading company was; I have to read to find out that answer." (4) *How were the trading companies...?* "Hmmm, trading companies again...the trading companies must be important because they ask two questions about them."

He turns to the second section of the chapter, placing his finger on the section title: *How Did Virginia Become the First Successful English Colony?* "How...when I see the word 'how,' I think of events." His finger moves to the first subtitle: *Sir Walter Raleigh's Attempt to Start a Colony Fails*. "That's an event." He pauses, with a brief glance back to the title, then to the subtitle. "But [the subtitle] said [the colony] failed, but [the title] said it became the first successful English colony. That's strange." He begins to skim the paragraph below the subtitle. "I see North Carolina. [Walter Raleigh] must have failed in North Carolina before he became successful in Virginia." His finger moves to the second subtitle: *English Settle in Jamestown....* "That's an event on how Virginia became the first successful English colony." *Jamestown Settlers Encountered Difficulties*. He looks up to reflect. "So, they must have had problems before the colony became successful. Over here there's a map." He scans the map briefly with his finger, saying, "Pennsylvania. Here's Virginia and Jamestown. Jamestown is a city of Virginia. Here's North Carolina, the state under Virginia." He pauses a moment, then places his finger on the third subtitle for this section....

I have focused on this example for two reasons: (1) it demonstrates the complexity of skilled learning and the learner's coordination of cognitive and metacognitive strategies, and (2) the student who demonstrated the "think aloud" strategy for a video teleconference is the same student described previously as Harlow (Jones et al. 1988). Interestingly, members of the audience commented that we should not have picked such a skilled learner to demonstrate strategies for the average student! Unfortunately, while Harlow can apply this strategy comfortably to various texts and has commented repeatedly on how easy it is, whether or not he actually uses this strategy will depend on the tests he is given. If he continues to be tested only for recall of isolated facts, he probably will not use the strategy. It will also depend on whether or not his

teachers encourage him to use it—which leads to the question of defining roles for effective teaching.

Effective Teaching

Traditional Models

Clearly, it is not within the scope of this chapter to review the various models for effective teaching. However, one widely used model from that strand of research is illustrative. In 1983, Rosenshine (1983) defined the teaching functions from effective classrooms in an award-winning article (see also Rosenshine 1986). These functions include the following: review prior learning, present material in small steps with explanations and active student practice after each step, provide for understanding, provide systematic feedback and testing, and so on.

Although all of these functions are important, this model and others like it omit many of the values and strategies associated with expert teaching and cognitive instruction. That is, the functions above do not provide for anchoring the instruction in functional contexts (e.g., Bransford et al. 1986; Stich and Hickey in press), effectively teaching students to become strategic learners (e.g., Paris, Lipson, and Wixson 1983), or teaching for conceptual change (Anderson and Smith 1987).

For example, cognitive psychologists such as Winograd and Hare (in press) define explicit instruction very differently from the notion of direct instruction implied in various effective teaching models. In the latter, direct or explicit instruction means that the teacher presents a skill *as an end in itself* and explains how to use it with guided practice and comprehension monitoring. In contrast, explicit instruction from the perspective of cognitive psychologists means that the teacher presents the skill *as a means to learning the content*, models the application of specific thinking strategies, explains why they are important and when to use them, *and* provides extensive coaching for transfer that goes far beyond guided practice with feedback. In this version, the focus is on teaching students to be strategic learners, and the instruction is anchored in content instruction and use.

There is another problem with the effective teaching model. Its thrust toward teacher-directed instruction is antithetical to recent literature on collaborative learning (e.g., *Educational Leadership* 1987) that advocates teaching students to become independent learners who are capable of evaluating their own learning (Palincsar 1987), and indeed encourages reforms for critical literacy. In a biting criticism of the effective teaching model, Wise characterizes it as leading to an "educational world" in which "passive learners" are "fed basic skills in bit-sized chunks to be regurgitated on command before the next scrap of spartan fare can be served," and in which there is a lack of concern for such themes as

"individualism, individual freedom, creativity, analytical thinking, and international competitiveness of the twenty-first century" (Levine in press).

Renewed Models of Effective Teaching

In a recent analysis of the research on effective teaching, Brophy (1988) argues that since most of the effective teaching research has been conducted with students in classrooms using Chapter 1 funding, the model is appropriate for students at risk. He also acknowledges, however, that it needs to be extended to include the teaching of cognitive and metacognitive strategies. While these modifications are vital, and Brophy is to be commended for identifying this need for adaptation, they do not fully address the criticisms above (see Jones and Friedman 1988).

Moreover, there is a flourishing literature on expert teaching and cognitive instruction to guide reform. Some of these visions of teaching and schooling are general but would benefit students at risk especially. Shulman's (1987) model, for example, emphasizes comprehension and reasoning, transformation, and reflection, and provides a useful portrait of an expert teacher. In Reigeluth's (1987) model of schooling, teachers are guides who orchestrate the resources of schools, parents, and community as well as of richly stocked learning labs and cluster schools. I would also refer the reader to the articles on collegial learning in *Educational Leadership* (1987), as well as to Collins, Brown, and Newman (in press) for a discussion of the principles of instruction involved in the most successful instructional interventions from cognitive psychology.

Other principles of learning and instruction from cognitive psychology address students at risk specifically. Jenkins, Pious, and Peterson (in press) have examined effective and ineffective instruction for learning-disabled students and for educable mentally retarded students in different categories. They argue that the most successful instruction in these categories is more similar than different and question the value of separate instruction.

Additionally, Brown, Palincsar, and Purcell (1986) have written an excellent article entitled "Poor Readers: Teach, Don't Label" in which they argue that poor readers have become poor readers largely by being successful in the substandard fare of basic skills instruction offered to them in most schools. They call for integrating instruction for students at risk into the regular classroom, provided that it is academically rich and that the teacher offers effective cognitive instruction. Reciprocal teaching is an example of a cognitive instruction developed by Palincsar and Brown (1985) for low-achieving students. This approach teaches

students four strategies—self-questioning, clarifying, summarizing, and predicting—in the context of a dialogue between the teacher and students during which the teacher gradually transfers responsibility for learning to the students. Other examples of cognitive instruction appropriate for students at risk may be found in works related to the concept of strategic teaching (see Jones, Palincsar et al. 1987; Jones, Tinzmann et al. 1987; Palincsar et al. 1986).

Models of reform for students at risk should take into consideration the differences in models from expert teaching and cognitive instruction, as distinct from traditional models of effective teaching. However, it is hoped that future models of effective teaching will incorporate more fully the research from expert teaching and cognitive instruction, so that effective teaching will be closer to the meaning of expert teaching.

Instructional Leadership and Effective Schools

Traditional Visions

The May 1988 issue of *Education and Urban Society* focuses on the reform theme "Rethinking School Leadership." Several articles feature analyses of instructional leadership. To my dismay, all of them drew their definitions and frames of reference from the literature on leadership, school culture and organization, and the sociology of the classroom. Certainly all of these topics are important for effective school functioning. However, not one of the authors typically writes about curriculum and instruction, and in the entire issue, there were almost no references to research on expert teaching, staff development, curriculum and instruction, or instruction in any of the content areas! This tendency to define instructional leadership exclusively in terms of leadership rather than instruction is not limited to this one publication; rather, it runs throughout the literature on instructional leadership.

There is an equivalent lack of focus on curriculum and instruction in the literature on effective schools. In general, this literature still focuses largely on strong leadership, high expectations for students, accountability for teachers, monitoring of student progress, teaching of skills to all students, and clarity of curriculum objectives. All of these factors are indeed vital to establishing an effective school, to be sure. Nevertheless, it is questionable whether principals, superintendents, and other instructional leaders can make appropriate decisions about curriculum, instruction, and grouping, when so much of the literature they read does not address these problems directly and in depth.

Renewed Visions

Happily, some effective school researchers do focus on the changes in curriculum and instruction needed for students at risk. Pink and Liebert

(1986), for example, discuss the inadequacies of school leadership for instruction, of basals in general, and of instruction for students at risk, as well as other barriers to effective instruction. Among other things, they recommend (1) developing district reading objectives based on an analysis of students' needs and reasons for student failure, rather than on the content of the basals; (2) aligning the basal text to these objectives, (3) extending reading instruction for low-achieving students to focus on reading for meaning and reading to learn instead of on learning isolated subskills, and (4) providing staff development for teachers and building leadership that focuses on issues of curriculum and instruction.

Stedman (1988) argues that the list of correlates for effective schools should be amended to provide (1) academically rich programs that stress cognitive development, not just basic skills; (2) attention to goals involving cultural pluralism and multicultural education; (3) cooperation between educators and parents; and (4) emphasis on solving students' personal problems and developing their social skills.

Levine and his colleagues (Levine this volume and in press; Levine and Cooper in press) have written excellent discussions relating explicit comprehension instruction, strategic teaching, and the characteristics of effective comprehension instruction for low-achieving students to the effective schools movement and the process of school change. They also discuss the need for better models of teacher education as vital links in the change process. Clearly, we must apply all that we know about learning and teaching to improve models of teacher education.

Finally,Sizer (in Brandt 1988) discusses what is probably one of the most serious problems of curriculum and instruction for all students, and especially for low-achieving students: the sheer amount of information that students are expected to learn (Peterson 1987). It is outrageous and highly destructive to the learning process for students to have textbooks with 500-700 pages of facts and details with no guidelines as to how to select, sequence, or prioritize; with few summaries, questions, or highlights of key information; and with little emphasis on strategies to help students understand key concepts and applications of what they read (Tyson-Bernstein 1988). Sizer argues that it is vital in this wave of reform to establish what is essential to teach and for what purposes, and to have instructional leaders committed to implementing such reforms.

Changes in Who Teaches Thinking

Who teaches thinking? The answer to this question determines to a great extent *how* thinking will be taught. If it is taught in a skills course, objectives for skills and strategies will drive the sequencing of instruction. If it is taught in the context of a content course, content

objectives will drive the sequencing of instruction. There is considerable debate as to which context is more effective for teaching at-risk students. On the one hand, Feuerstein and his colleagues (Feuerstein et al. 1985) argue that low-achieving students may experience cognitive overload if they must learn both content and skills simultaneously. Accordingly, they have developed *Instrumental Enrichment* as an adjunct program, using content-free geometric shapes and pictures. Most other adjunct programs for teaching thinking, however, use a combination of prose and visual formats. On the other hand, others argue that instruction should be content driven because a substantial part of skills and strategies is content specific and because it typically does not transfer easily to other areas (Resnick 1987).

In a sense, both arguments are true. Thus, the position taken here is that content-driven skills instruction, in which skills are learned as a means to learning the content or solving problems, is generally preferable, unless students are having great difficulty with the content. In this event, additional strategy instruction might be very helpful, provided that transfer is built into the instruction and that the substance of the adjunct program is well coordinated with the content courses.

What Skills and Strategies Are Taught

To some extent this issue has already been discussed. However, the importance of moving students at risk from "LOTS" (low-order thinking skills) to "HOTS" (higher-order thinking skills) cannot be overemphasized. We can no longer continue to assign high-achieving students to a HOTS curriculum and low-achieving students to a LOTS curriculum on grounds of equity or quality of instruction. All too often, teaching basic skills means teaching low-achieving students many fragmented skills in contexts that are boring and demoralizing, while high-achieving students in the next room are enjoying a challenging curriculum and sustained instruction focusing on essential skills for critical thinking and problem solving. To put it simply, low-achieving students are unlikely to become productive citizens if they are never given the same opportunities to participate that high-achieving students are.

We must be careful as to what skills are taught, however. According to Feuerstein and his colleagues (Feuerstein et al. in press), many of the programs for higher-order thinking are not appropriate for low-achieving students because these students may need prerequisite instruction. At the same time, there seem to be some core thinking skills that are research based and apply across a variety of content areas, although there may be varying definitions as to what these would be. For example, Marzano and his colleagues (Marzano et al. 1988) have identified 21

core skills that would be appropriate for schools that are teaching essential skills, rather than a hierarchy of skills and subskills (compare Jones, Tinzmann et al. 1987). But there may be considerable variation in defining such skills and implementing them systematically in the curriculum.

A final issue in considering what is taught is the notion that while some subject areas such as mathematics are clearly hierarchical in nature, there is little evidence to suggest that younger students and low-achieving students must learn low-order skills before learning higher-order ones in the language arts. There is ample evidence, however, that primary students can learn to summarize, clarify, question themselves, and regulate their learning processes in important ways (e.g., Palincsar and Brown 1985). This is not to say that it is easy to teach them; to the contrary, as stated above, they need sustained instruction. Rather, the intent here is to challenge the widespread practice of teaching skills in each course of study according to a lock-step sequence based on a taxonomy, regardless of the context.

In closing, it is important to emphasize again that there is substantial funding available for schooling from public resources, private foundations, and businesses, and these monies are likely to increase in future years. The budget for Chapter 1 is now \$3.9 billion, the federal government's largest investment in education, and there is language in this budget to apply it for alternative curricula, schoolwide instruction programs, and better coordination of Chapter 1 programs with the regular classroom. Moreover, many of the funds from businesses, private foundations, and states allow for coordinating and integrating many support services to schools to address the social, physical, and economic needs of students at risk. If ever there was a time to experiment and reform, to enact one's hopes for future generations, to be pioneers and models for years to come, it is now.

DISCUSSION QUESTIONS

1. How has the population of at-risk students changed since studies were made of disadvantaged youths in the 1960s, and what effects are these changes likely to have on American society?
2. What are the characteristics of skilled learning behavior, and how do these differ from the fragmented, short-term responses often made by at-risk students?
3. What does the learning model presented in the example above teach the student (Harlow) about metacognitive activity during his studying?

4. If teachers actually use strategic instruction with at-risk students, what assumed practices may they need to change?

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Toward a New Mainstream of Instruction for American Schools

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THE NEED FOR INSTRUCTIONAL REFORM

The question of what should be the central focus for education is one that has increasingly been debated in the nation.¹ In the 1970s, the general reaction to students' deficiencies led to renewed public demand for a return to the basics of education and a refocusing on the "three Rs." As interpreted by state legislators, the courts, and school systems, this demand resulted in a reversal of the educational trends of the 1960s—a change from open classroom and student-centered instruction to more traditional classroom and teacher-centered instruction, and a moving away from scientific inquiry models toward the test-driven curriculum and didactic teaching styles that were advocated prior to the curriculum revolution of the 1960s.² The resulting curriculum of the current decade stresses minimum skills and continues to produce students who are unable to perform comprehension tasks sufficiently.³

Public education remains under fire from the press, from business and community leaders, and from legislators and parents.⁴ Xerox Corporation CEO David Kearns has stated that "public edu-

¹Allan Bloom, *The Closing of the American Mind* (New York: Simon & Schuster, 1987); and E. D. Hirsch, Jr., *Cultural Literacy: What Every American Needs to Know* (New York: Random House, 1988).

²Anne M. Bussis, "Burn It at the Casket: Research, Reading Instruction and Children's Learning of the First R," *Phi Delta Kappan*, 64 (December 1982), 327-341; and Jeanne Chall, "Minimum Competency in Reading: An Informal Survey of the States," *Phi Delta Kappan*, 61 (January 1979), 35-38.

³Robert Glaser, "Education and Thinking: The Role of Knowledge," Technical Report No. PDS-6 (Pittsburgh, PA: University of Pittsburgh, Learning Research and Development Center, June 1983).

⁴Eric J. Cooper, *Testimony Before the Subcommittee on Elementary, Secondary, and Vocational Education, U.S. Congress, The Reauthorization of Expiring Federal Elementary and Secondary Education Programs: Hearing on HR-5, 100th Congress, 1st Session (Serial No. 100-9)*, (Washington, DC: U.S. Government Printing Office, 1987).

cation has put this country at a terrible competitive disadvantage. The American workforce is running out of qualified people. If current demographic and economic trends continue, American business will have to hire a million new workers a year who can't read, write or count."⁵ Unfortunately, the students who may be most in need, i.e., minorities, are those least likely to receive the educational support necessary for success in the 21st century. They, more so than other populations, are school dependent and, as such, need access to the *best* teachers, programs, assessment instruments, materials, and schools. Poussaint stated the problem succinctly:

If it is any consolation, it appears that American education is short-changing just about everyone—rich and poor, urban and suburban, advantaged and disadvantaged, black and every other color. Unfortunately, and this is the dilemma, black students are substantially behind a student population that is, as a whole, far behind where current studies say it needs to be. If the goal is only to reach a national average, black kids will be in the no-win situation of trying to play catch-up. Playing catch-up will not put black students where the Carnegie Forum on Education and the Economy says all students need to be to make it in the 21st century.⁶

It is estimated that, by the year 2000, one out of every three Americans will be non-White,⁷ and that one out of every five students in the nation's public schools will be non-White.⁸ Yet, given this country's disappointing track record regarding educational reform⁹ and its lack of success in educating disadvantaged urban students,¹⁰ there is increasing evidence that some schools and school districts *are* performing significantly above the norm in teaching minorities.¹¹ There is a need to move beyond the rhetoric of reform to identify and establish schools that work for minority students as well as for those students who presently make up the majority. There is also a need to move beyond what have been traditionally identified as the drivers of educational reform to practical suggestions for improving educational opportunities for minority students.

The drivers of curriculum that have been the subject of much

⁵David T. Kearns, Speech before the Economic Club of Detroit (MI), 26 October 1987, p. 1.

⁶Alvin Poussaint, "It Ain't No Consolation," in *Educating Black Children: America's Challenge*, eds. D. L. Strickland and E. J. Cooper (Washington, DC: Howard University, 1987), p. 44.

⁷Harold L. Hodgkinson, "Facing the Future: Demographics and Statistics to Manage Today's Schools for Tomorrow's Children," *The School Administrator*, (September 1988).

⁸Ernest L. Boyer, "Introduction," in *Educating Black Children*.

⁹M. W. Sedlak, C. W. Wheeler, D. C. Pullin, and P. A. Cusick, *Selling Students Short* (New York: Levittown Public Schools and The College Board, 1985).

¹⁰Jonathan Kozol, "A Report Card on America's Schools After Twenty Years," *The School Administrator*, (October 1988), 13-14; and Alvin Poussaint, "It Ain't No Consolation," in *Educating Black Children*.

¹¹Barbara Sizemore, "Pitfalls and Promises of Effective Schools Research," *Journal of Negro Education*, 54 (Summer 1985) 269-288.

discussion include tests and textbooks.¹² The impact of these drivers on schooling often clouds the ability of educators to identify a clear direction for instructional change, causing many of them to eventually drive off into an instructional dead end.¹³ This dead end may be partially reflected by the following research data:

- Eighty percent of the knowledge students are exposed to comes from textbooks marked by many flaws.¹⁴
- A New York public school system discovered that 80 percent of materials in grades 3–12 were inappropriately matched to the academic needs of their students.¹⁵
- Seventy percent of allocated instructional time may be spent on workbook-type exercises that often bear little relationship to student needs.¹⁶
- Students often spend more time engaged in workbook activities than in instructional activities with their teachers.¹⁷
- By popular estimate, 80 to 95 percent of what goes on in the classroom is derived from published instructional material rather than from the active processing of knowledge between students and teachers.¹⁸
- In an analysis of elementary and secondary instruction, less than 1 percent of instructional time was devoted to students' respond-

¹²R. Anderson, J. Osborn, and R. Tierney, eds., *Conference Proceedings on Learning to Read in American Schools: Basal Readers and Content Texts* (Tarrytown, NY: University of Illinois/Urbana-Champaign, Center for the Study of Reading, 1981); Dolores Durkin, "What Classroom Observations Reveal About Reading Comprehension Instruction," *Reading Research Quarterly*, 14 (1978), 481–533; J. R. Frymier, D. L. Davis, and D. Clinefelter, "Curriculum Materials Used by 11-Year-Old Pupils" (Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, Louisiana, February 1977); Kenneth Komoski, *National Study of Nature and Quality of Instructional Materials Most Used by Teachers and Learners*, Report No. 76 (New York: EPIE Institute, 1976); and Robert Linn and Carolyn J. Palmer, "Standards and Expectations: The Role of Testing," in *Conference Proceedings on San Francisco Excellence in Education* (New York: The College Board, 1985), pp. 88–95.

¹³Dolores Durkin, "What Classroom Observations Reveal About Reading Comprehension Instruction"; J. Mason and Jean Osborn, *When do Children Begin Reading to Learn? A Survey of Classroom Reading Instruction Practices in Grades Two Through Five*, Technical Report No. 261, (Urbana, IL: University of Illinois/Urbana-Champaign, Center for the Study of Reading, 1982); C. D. Fisher et al., *Teaching and Learning in Elementary Schools: A Summary of the Beginning Teacher Evaluation Study* (San Francisco: Far West Laboratory for Educational Research and Development, 1978); and R. English, "The Politics of Textbook Adoption," *Phi Delta Kappan*, 62 (December 1980), 275–278.

¹⁴R. English, "The Politics of Textbook Adoption"; Harriet Bernstein, *Improving the Quality of Textbooks* (Secaucus, NJ: Matsushita Foundation, 1987); and E. D. Hirsch, Jr., *Cultural Literacy: What Every American Needs to Know*.

¹⁵Herman A. Sirois and Robert L. Davis, *School Improvement Through Instructional Design: Matching Teaching Strategies and Instructional Materials* (New York: Levittown Public Schools and The College Board, 1985).

¹⁶C. D. Fisher et al., *Teaching and Learning in Elementary Schools*.

¹⁷J. Mason and Jean Osborn, "When do Children Begin Reading to Learn?"

¹⁸Jean Osborn and Marcy Stein, "Textbook Adoptions: A Process for Change," in *Reading, Thinking, and Concept Development: Strategies for the Classroom*, eds. T. L. Harris and E. J. Cooper (New York: The College Board, 1985).

- ing to teacher questioning that demanded open responses involving reasoning or opinions. Usual student responses were based solely on informational answers to the teacher's questions.¹⁹
- In a landmark study, less than 1 percent of instructional time in the later elementary grades was spent on comprehension instruction, though teachers questioned in this study felt that comprehension instruction was an extremely important part of children's learning.²⁰

There is an obvious need in this country to move beyond instruction that limits students' academic experiences to the use of poorly developed materials, that engages them in seatwork that may be improperly designed for their academic needs, or that forces them to attend to a series of activities geared to elicit the simple regurgitation of facts and figures. One implication of the above data is that educators need to rethink how classrooms in this country are managed and organized for instruction. We cannot assume that school reform will take hold until we address the objectives and goals of effective schools, that is, schools that sustain high levels of growth for all students.²¹

A likely beginning is with the child. It is at this reference point that cognitive research has made the most progress in the past fifteen years.²² It is how children think—and ultimately, how *all* of us think—that has concerned psychologists like Piaget, Vygotsky, and Bruner; philosophers like Aristotle and James; and every good teacher in school systems throughout the country. Cognitive scientists concerned with improving instruction have, as Fredericksen stated, "... attempted to describe the psychological processes that occur when one reads, plays chess, solves puzzles, or attempts to solve mathematical problems."²³ The result of this research has been an information-processing theory of cognition that is highly relevant to teaching and that should help educators solve the complex puzzle of how instruction can be improved.

This article will address some of the educational drivers that continue to steer teachers away from improving educational opportunities for minority students, and it will suggest some practical

¹⁹John L. Goodlad, *A Place Called School: Prospects for the Future* (New York: McGraw-Hill, 1984).

²⁰Dolores Durkin, "What Classroom Observations Reveal About Reading Comprehension Instruction."

²¹Cooper, *Testimony Before the Subcommittee on Elementary, Secondary, and Vocational Education*.

²²Robert Glaser, "Education and Thinking: The Role of Knowledge."

²³Norman Fredericksen, *Implications for Theory for Instruction in Problem Solving* (Princeton, NJ: Educational Testing Service, 1983).

instructional alternatives that support many of the exciting changes underway.

THE DECLINE IN TEACHING THINKING

It is assumed by most observers of the American educational system that schools exist to teach students how to learn. Yet, for some observers this statement is both questionable and controversial.²⁴ For example, in Florida, many have argued that schools exist to teach students how to pass the SSAT-I and SSAT-II tests. In New York, others have argued that instruction is driven by the state Regents exam. In other states, the concern is that schools exist to help students pass basic competency tests such as the G.E.D.²⁵

With the growing debate over the expansion of the National Assessment of Educational Progress (NAEP), one can assume that testing will remain a central issue for those engaged in instructional reform.²⁶ Yet, no matter how good the test, it is not the same as learning, and tests should not be the primary vehicles for moving education toward some semblance of excellence. Teaching students *how* to learn is essentially different from teaching them how to acquire information, to memorize, to take a test, or to build upon any other skills.

The need to focus on improving the thinking skills of minority and other students is well documented. Reference to research emerging out of cognitive science is widespread,²⁷ yet it is mainly the rhetoric about thinking that has flourished. The application of teaching for thinking to classroom practice still lags far behind. Classroom materials in widespread use still emphasize the acquisition of minimal cognitive skills.²⁸ Teachers and administrators continue to purchase materials that teach low-level basic skills without regard for what students need to learn to exist as active members of the general society.²⁹ Tests that place "much emphasis . . . on improving students' performance in the 'basic' rudimentary skills that are easiest to teach and test" are continually used.³⁰

²⁴Linn and Palmer, "Standards and Expectations"; and Linda Darling-Hammond, *Equality and Excellence: The Educational Status of Black Americans* (New York: The College Board, 1985).

²⁵Linn and Palmer, "Standards and Expectations"; and Robert L. Linn, "State-by-State Comparisons of Student Achievement: Some Reservations and Suggestions for Enhancing Validity," *Educational Research*, (in press).

²⁶Linn, "State-by-State Comparisons of Student Achievement."

²⁷Lauren B. Resnick, *Education and Learning to Think* (Washington, DC: National Academy Press, 1987).

²⁸Louis E. Raths et al., *Teaching for Thinking* (New York: Teachers College Press, 1986).

²⁹Cooper, *Testimony Before the Subcommittee on Elementary, Secondary, and Vocational Education*.

³⁰Eugene E. Eubanks and Daniel U. Levine, "Administrative and Organizational Arrangements and Considerations," in *Educating Black Children*, p. 7.

Resnick clearly articulated a historical perspective on what may begin to answer the question of why the rhetoric of teaching thinking has flourished, while classroom practice has seemingly not followed suit:

... the goals of increasing thinking and reasoning ability are old ones for educators. Such abilities have been the goals of some schools at least since the time of Plato. But these goals were part of the high literacy tradition; they did not, by and large, apply to the more recent schools for the masses. Although it is not new to include thinking, problem solving, and reasoning in someone's school curriculum, it is new to include it in everyone's curriculum. It is new to take seriously the aspiration of making thinking and problem solving a regular part of a school program for all of the population, even minorities, even non-English speakers, even the poor. It is a new challenge to develop educational programs that assume that all individuals, not just an elite, can become competent thinkers.³¹

Over the last decade, we have been more concrete about the improvement of instruction since we have continued to gain knowledge about the processes of learning.³² However, as Darling-Hammond has pointed out "between 1972 and 1980, use of teaching methods that might encourage the development of higher-order thinking abilities, e.g., project or laboratory work, writing tasks, and student-centered discussions, declined in public schools . . ."³³ The reasons given by Darling-Hammond and others for this decline are based on the observation that many tests, textbooks, and curricula have focused increasingly on minimal skills (e.g., literal comprehension, routine computation, factual recall) rather than skills that lead students to a higher level of thinking (e.g., inferential and critical problem-solving, comprehension, representation, elaboration, inductive inquiry, synthesis, and evaluation).³⁴ A consequence of this focus is illustrated by NAEP data that suggest that there is "more cause for concern about the ability of students to solve problems requiring higher-level skills and an understanding of basic principles than their ability to recall discrete facts or to perform routine operations".³⁵

Given the prevalence of instruction stressing minimal basic skills,

³¹Resnick, *Education and Learning to Think*, p. 7.

³²William Kintsch, *The Representation of Meaning in Memory* (Hillsdale, NJ: Holstead Press, 1974); Harold L. Herber, *Teaching Reading in Content Areas* (Englewood Cliffs, NJ: Prentice-Hall, 1978); Robert Glaser, ed., *Advances in Instructional Psychology*, vol. 1 (Hillsdale, NJ: Erlbaum, 1978); Theodore L. Harris and Eric J. Cooper, eds., *Reading, Thinking, and Concept Development*; Robert J. Marzano et al., *Dimensions of Thinking: A Framework for Curriculum and Instruction* (Alexandria, VA: Association for Supervision and Curriculum Development, 1987); and Judith A. Langer and Victoria Gates-Purcell, "Knowledge and Comprehension: Helping Students Use What They Know," in *Reading, Thinking, and Concept Development*.

³³Darling-Hammond, *Equality and Excellence*, p. vii.

³⁴Dorothy S. Strickland and Eric J. Cooper, eds., *Educating Black Children*.

³⁵Linn and Palmer, "Standards and Expectations," p. 9.

there is good reason to consider the implications of recent research on teaching and learning.³⁶ Concurrently, as a result of the acute problems related to minority performance,³⁷ there is a need to propose a "new mainstream" for schooling. The purpose would be to help administrators, supervisors, teachers, and parents integrate the new wave of educational reform into the everyday activities of schools that are serving an increasingly diverse student population.³⁸

A VISION OF SCHOOL REFORM

Due to the diverse needs of students in this country, educators need to refocus and expand their vision of what should be done in the nation's classrooms. Rather than focusing on the traditional drivers of instruction, this vision should highlight what students have in common and address the patterns of thinking by which people from different cultures, backgrounds, skill levels, and languages learn to learn in a nourishing atmosphere. This should be the ultimate goal of education and is the source for a New Mainstream of instructional reform. This reform will bring together research on cognition, an understanding of how students engage themselves in the learning process, and the delivery of instruction necessary for diverse student populations. Care must be taken to avoid the abuses of segregation, tracking, and an inadvertent separation of minorities into programs which move them away from the mainstream, e.g., some Special Education and Chapter 1 programs.³⁹

The proposed New Mainstream consolidates guarantees of student competency with support to extend learning to the limits of a child's potential. To move toward it there is an obvious need to recognize that no one approach to reform will be a panacea for the nation's educational concerns,⁴⁰ yet there are specific organizational and instructional arrangements that have proven successful in educating disadvantaged and minority students. Eubanks and Levine,

³⁶B. S. Bloom, "Helping All Children Learn Well in Elementary School—And Beyond," *Principal*, 67 (March 1988), 12-17; Ann L. Brown, "Teaching Students to Think as They Read: Implications for Curriculum Reform" (Paper for the American Educational Research Association Project: Research Contributions for Educational Improvement, November 1984); Goodlad, *A Place Called School*; Anne-Marie Palincsar and Ann Brown, "Reciprocal Teaching: Activities to Promote Reading with Your Mind," in *Reading, Thinking, and Concept Development*.

³⁷American Council on Education, *Annual Report of the American Council on Education* (Washington, DC: ACE, 1986); Alvin Poussaint, "It Ain't No Consolation."

³⁸Boyer, "Introduction."

³⁹John O'Neil, "How 'Special' Should the Special Education Curriculum Be?" *Curriculum Update*, (September 1988), 1-8.

⁴⁰Robert Slavin, "On Research and School Organization: A Conversation with Bob Slavin," in *Educational Leadership*, ed. Ronald Brandt (Alexandria, VA: Association for Supervision and Curriculum Development, 1988), pp. 22-29.

for example, have reported that "such arrangements emphasize provision of educational assistance to improve reading performance through tutoring before school, during lunch, or after school, utilization of teachers' aides, reductions of non-essential time in art, music, or other subjects, formation of smaller in-class groups for low achievers than for other students . . ."⁴¹

Other researchers such as Benjamin Bloom and Comer have described the importance of linking the home and school in a partnership based on instruction (e.g., the use of graded homework has been identified as a factor related to improved student achievement).⁴² Bloom also stressed the importance of developing automaticity in reading and of an instructional focus on teaching higher-order thinking processes as integral factors related to student learning.⁴³

Still other educators have stressed the reorganizing of schooling as key to school improvement and student achievement. Bensman reported on an inner-city school that reorganized its physical, instructional, and attitudinal constructs in favor of a student-centered philosophy; in effect, teachers and students work under the guiding principle "less is more." Content-area instruction was integrated and focused on three subjects (i.e., math, science, and the humanities, including language arts). Higher-order thinking, synthesis and application became the primary goals of classroom activities at the school. Students work in small groups almost exclusively and are taught through such strategies as team teaching, coaching, modeling, and cooperative learning. Community involvement of students which allows them opportunities to apply skills learned in the classroom is an integral activity of the school. The school does not track students into specific learning streams—in fact, all groups are heterogeneous, whereby students performing on different levels of ability work to support each other's learning. High expectations as well as instructional arrangements that lead to cognitive skill development are the central themes of this highly successful inner-city school.⁴⁴

COGNITIVE MODELS OF LEARNING AND TEACHING

Recent cognitive research has provided the field of education with some answers as to how students learn and how they may

⁴¹Eubanks and Levine, "Administrative and Organizational Arrangements and Considerations," p. 22.

⁴²B. S. Bloom, "Helping All Children Learn Well in Elementary School—And Beyond"; and Comer, "Black Family Stress and School Achievement."

⁴³B. S. Bloom, "Helping All Children Learn Well in Elementary School—And Beyond."

⁴⁴David Bensman, *Quality Education in the Inner City: The Story of Central Park East Schools* (New York: New York Community Trust, 1987).

learn to perform higher-order cognitive tasks. It is this research that has begun to address the transaction by which information is imprinted, communicated, or understood—the *how of how we learn*.

The imprinting of information seems to follow specific routes from an idea to spoken words, to listening, and to ownership of that idea. These routes form a "cognitive map" from stimulus to understanding.⁴⁵ Ausubel and others have postulated that thinking involves the making of maps of knowledge derived from knowledge already understood.⁴⁶ It is inferred from this that cognition is a matter of building patterns and of developing strategies to incorporate new information with old, i.e., building networks of information that bridge the gap between what we know and do not know.⁴⁷

Cognitive Research and Reading

It is with respect to comprehension instruction that some of the more dramatic applications of cognitive theory have been consolidated. There are several reasons why this has occurred.

First, reading comprehension involves cognitive processes similar to the processes involved in thinking.⁴⁸ For example, even reading recreational material on trains or planes requires a concentrated cognitive act to remember the perils of a Robert Ludlum character as he or she moves from one dramatic situation to another. Thinking is central to reading comprehension, so much so that Pearson and Johnson have stated that "whatever influences general thinking or problem solving ability also influences reading . . ."⁴⁹

Reading can also be broken down into many identifiable strategies by which information passes from the mind of the reader to the page and from the page into our memories. Research has indicated that readers use many different strategies for understanding what they read, just as map readers may look at the back roads on a map.⁵⁰ Readers seem to develop schema that enable them to

⁴⁵S. G. Paris and B. K. Lindauer, "The Development of Cognitive Skills During Childhood," in *Handbook of Developmental Psychology*, ed. B. Walman (Englewood Cliffs, NJ: Prentice-Hall, 1982).

⁴⁶David P. Ausubel, "Cognitive Structure and the Facilitation of Meaningful Verbal Learning," *Journal of Teacher Education*, 14 (1963), 217-222; and Ference Marton, Dai Hounsell, and Noel Entwistle, eds., *The Experience of Learning* (Edinburgh: Scottish Academic Press, 1984).

⁴⁷Brown, "Teaching Students to Think as They Read"; Scott G. Paris, "Using Classroom Dialogues and Guided Practice to Teach Comprehension Strategies," in *Reading, Thinking, and Concept Development*; David P. Pearson and Dale D. Johnson, *Teaching Reading Comprehension* (New York: Holt, Rinehart and Winston, 1978); and Glaser, ed., *Advances in Instructional Psychology*, vol. 1.

⁴⁸Pearson and Johnson, *Teaching Reading Comprehension*; Herber, *Teaching Reading in Content Areas*; Emmet A. Betts, "Reading is Thinking," *The Reading Teacher*, (February 1959), 223-228; and E. B. Huey, *Psychology and Pedagogy of Reading* (New York: Macmillan, 1908).

⁴⁹Pearson and Johnson, *Teaching Reading Comprehension*, p. 9.

⁵⁰Brown, "Teaching Students to Think as They Read."

understand letters, words, phrases, and connected prose while incorporating new data with old. Therefore, to build knowledge, one must first have some knowledge to begin with, i.e., one begins with a lump of experience to which one can attach more experience.⁵¹

Applying this conceptual scheme, this model of how reading is learned involves another connection between mapping and reading comprehension: teaching reading requires an intellectual map through which teachers and learners travel from novice to expert.

Instructional Bridging

In the most current teaching, learning, and cognitive models, this map is not linear. To elaborate on this point, Brown has discussed the concept of "expert scaffolding," which involves the construction of learning scaffolds deliberately and consciously erected by a teacher and the building of schema with classes of children in an interactive environment.⁵² The "expert" provides classroom activities from which students gradually acquire skills; thus, teachers create a laboratory situation in which "novices are encouraged to watch and then to participate before they are able to perform unaided." Within this instructional context, good teaching is based on providing the appropriate clues, not the answers, for the students.

In practice, such scaffolding allows students to build concepts from their discussions; only when these concepts, ideas, or mental constructs are experienced or concretized does a teacher move to develop the students' words into key words, phrases, and prose for improving understanding. When this conceptual model is applied to learning or even to test development, it is the opposite of simply instructing students to fill in the blanks. Instead, teachers build the sentences using appropriately leveled language for the student while devising a process whereby gaps purposely occur, generating questions for which a single answer is usually incorrect. In this context, there are no "right words" to a fill-in-the-blank discussion developed by the teacher. Instead, there are ideas that build upon other ideas in a planned way, taking the form of a scaffold which may be as challenging to the tester as to the test taker.

Expert scaffolding lends itself to a wide range of teaching styles, classroom formats, and subject matter. It is particularly useful to

⁵¹Brown, "Teaching Students to Think as They Read"; Langer and Gates-Purcell, "Knowledge and Comprehension"; and Hirsch, *Cultural Literacy*.

⁵²Brown, "Teaching Students to Think as They Read," pp. 9-10.

comprehension instruction because one rarely attends to the specific strategies; yet, in fact, good readers may use them all the time. Beyond the coding activities of phonics and the memorization of most spelling instruction, the how of reading is mostly unconscious and undirected. However, reading remains subject to direct improvement through mediated instruction.⁵³ In a classroom structured with this kind of scaffolding, students discover the skills they use, while they use those skills as individuals and as a group.

This is more obvious when we look at some of the strategies and cognitive signposts that appear on the maps developed for improving reading comprehension. Paris⁵⁴ listed six reading strategies:

1. understanding the purposes of reading
2. activating relevant background knowledge
3. allocating attention to main ideas
4. critical evaluation
5. monitoring comprehension
6. drawing inferences

These learning strategies are generic in that they reflect technique rather than subject matter. They apply just as much to watching television or movies as to parsing sentences. Yet, they merit direct attention in the classroom both as illustrations of strategic teaching and as demonstrations of applied cognitive research.

The first strategy—to know the purpose of reading comprehension—involves mobilizing some commitment from students before expecting them to deliver on that commitment. It means sharing the need to comprehend, to think, and to understand written text across subject, grade, age, and school. A way to mobilize this activity is to get students to “buy into” the process of learning⁵⁵—a process whereby responsibility for learning is shared by teachers and students alike.⁵⁶

Secondly, rather than using testing as a motivator for learning, teachers might help students to understand the purposes of instruction through interactive and interdisciplinary lessons that build on

⁵³Jerome S. Bruner, *On Knowing: Essays for the Left Hand* (Cambridge, MA: Harvard University Press, 1979); Reuven Feuerstein, *Instrumental Enrichment: An Intervention Program for Cognitive Modifiability* (Baltimore, MD: University Park Press, 1980); Hilda Taba and F. F. Elzey, “Teaching Strategies and Thought Processes,” *Teachers College Record*, 65 (1964), 524–534; Paris, “Using Classroom Dialogues and Guided Practice to Teach Comprehension Strategies”; Harris and Cooper, *Reading, Thinking, and Concept Development*.

⁵⁴Paris, “Using Classroom Dialogues and Guided Practice to Teach Comprehension Strategies.”

⁵⁵*Ibid.*

⁵⁶Palincsar and Brown, “Reciprocal Teaching.”

prior knowledge gained from home and community experiences. More specifically, activating background knowledge means building from clearly understood ideas and bridging this knowledge across to new areas; it means motivating interest from curiosity and celebrating that curiosity with all the reinforcement teachers can bring to bear.⁵⁷ Of course, this does not mean that students can only relearn what they already know, but it does affirm Plato's observation that knowledge is a continuous rediscovery of our own insights.

Inspiring such insights is the aspiration and the goal of the New Mainstream, for new knowledge must be linked, overlaid, and enriched through vocabulary and history. If students do not know what their teachers are talking about as a result of prior exposure to a concept, then they will not understand why, how, or if the introduction of the concept makes any sense. Such an observation is no less relevant for a six-year-old than for a group of professionals. It is the *sense* of learning that teachers should strive to impart to their students not the mere ability to perform the rote calling of words.

Paris's strategy—to attend to main ideas—is, perhaps, the most frequent strategy used by many teachers and appears on most reading tests and in most textbooks; however, more often than not, the teaching of main ideas is taught out of the context of extended text and is isolated and treated as a separate function of reading comprehension.⁵⁸ The appropriate implementation of this strategy requires real concentration on the part of students and should not be viewed as a skimming exercise that teaches them to locate the topic sentence in isolation of "real" reading activities. Examined critically, the main idea strategy is as appropriate for the math, science, or health teacher as it is for the reading teacher. It requires that teachers think along with their students and that they provide examples or models of the concept while also providing feedback.⁵⁹ If materials are poorly designed for conceptual understanding to occur, teachers need to carefully guide students through the key concepts which, by the nature of the material, often are somewhat obscure for the reader.⁶⁰ However, with good materials, the pursuit should be as interesting as the discovery itself.

The two strategies described by Paris as involving evaluation

⁵⁷Paris, "Using Classroom Dialogues and Guided Practice to Teach Comprehension Strategies."

⁵⁸Joanna P. Williams, "How to Teach Readers to Find the Main Idea," in *Reading, Thinking, and Concept Development*.

⁵⁹*Ibid.*

⁶⁰Osborn and Stein, "Textbook Adoptions."

and monitoring are important for helping teachers and students avoid the inappropriate testing or quizzing that often follows instruction lacking clear purpose and that often stresses basic skills over comprehension and thinking skills. There are very few tests that have these kinds of strategies built into them. An exception related to reading comprehension assessment is "Degrees of Reading Power" (DRP), which was "designed explicitly to assess performance on dimensions other than rote mastery of narrow sub-skills."⁶¹ As important is the fact that the DRP is an untimed power test which, through its structure, avoids much of the testing bias inherent in timed assessments. The monitoring and evaluation that Paris suggests, as reading or learning strategies, are cognitive and interactional in nature, not easily tested nor easily taught using solely deductive and didactic approaches. Instead, classroom instruction needs to move away from the lecture format to the facilitation of instructional dialogues between students and teachers.

A potential problem related to classroom management when using the strategies stressed by Paris is that they may make for noisy classes. Yet, when people are involved in generating their own ideas, thinking and learning are rarely quiet activities. By their nature, monitoring and evaluating involve a high level of interaction since they often call for judgments and conclusions to be drawn within student/teacher dialogues.

The sixth and last of Paris's strategies is the drawing of inferences. When this strategy is internalized, students begin to control their own learning and assert that control with greater confidence. This transference from teacher to student is best attained when the teacher is willing to share instructional control with the students.⁶²

Interweaving Teaching and Learning

The strategies described herein are all on the map of the New Mainstream. They indicate some of the directions—some of the cognitive skills—that one must use as a learner and that, hopefully, students will gain in the course of their schooling. These and, obviously, many other strategies for teaching and learning should be the shared responsibility of schools, teachers, and students at all grade, discipline, and skill levels.

Teaching and learning are reciprocal, not complementary; they

⁶¹Eubanks and Levine, "Administrative and Organizational Arrangements and Considerations," p. 26.

⁶²Palincsar and Brown, "Reciprocal Teaching."

represent two sides of the same coin, not two parts of a fitted puzzle. This is a difficult concept to implement in schools and one that opens a host of options that have been available, yet not consistently deployed, in our schools. Thinking about what may be called strategic learning can highlight how teachers might also think about strategic teaching. Teachers may set the direction and do, in fact, chart the map and erect the learning scaffold, but they also share in the learning.

CONCLUSION

The suggestions outlined in this article can lead to a New Mainstream of instruction for minority and other students regardless of individual learning differences brought to the classroom. They draw on the expertise of every child for the experiential growth of every other child and of teachers and schools in general. This philosophy for instruction also reflects an educational arrangement based upon heterogeneous and untracked groupings in classrooms; thus, it may help avoid some of the transitional problems related to the pull-out programs that have been found to be disruptive to cohesive learning experiences.⁶³

Teaching should not be held as the exclusive prerogative of teachers. For example, reading and learning should not be segmented into a small niche of a large curriculum. Teachers should avoid delegating the passive activities—from blackboard cleaning to collecting papers—while retaining the active learning responsibilities—talking, listening, responding, and analyzing—for themselves. Regrettably, how often has a teacher overheard students asking, “Will it be on the test?” in order to find some purpose for an activity that they see little apparent reason to learn. This is an example of the most obvious misapplication of instruction: If it is only the testmakers that set purpose in schools, education has left the driving to them, and places in their hands the prerogative for choosing the routes, schedules, maps, and destinations for the school system. Classrooms where tests and textbooks may dominate 80 percent of what students are exposed to should be tolerated no longer. Instead, that 80 percent should be focused on mediated classroom discussions that provide for give-and-take interactions among students and among teachers and students.

The instructional changes proposed within this article require teachers who maintain high expectations for all students, admin-

⁶³For details of research related to the effectiveness of Chapter 1 programs, see Eubanks and Levine, “Administrative and Organizational Arrangements and Considerations.”

istrators with creativity and leadership, restructured classrooms for improved management of instruction, and partnerships forged out of participatory decision making with all of the individuals involved in the process of schooling. Cognitive theory as a central theme for this change can be applied without compromise and with major effect. It is a matter of driving or steering carefully through this path I am calling the New Mainstream—a broad stream that encompasses learning theory, student differences, and instructional reform.

Cognitive research has generated a body of knowledge and a library of strategic interventions that are helping to bring a renaissance to schooling. This research has provided us with new fuel for accelerating school improvement, yet it has, thus far, had remarkably little effect on instruction in the nation's schools. Obstacles such as minimal-competency tests and instructional material steeped in lower-order objectives need to be removed. Teachers and administrators unwilling to maintain high expectations for all students need to be retrained or removed. Classrooms that are organized primarily for lecturing by the teacher (where students, because of the seating arrangements, are forced to engage with the backs of their fellow students' heads) need to be restructured. Should we so choose to incorporate the process of learning into the management of schools for instruction, cognitive research provides us with an opportunity to improve schooling.

The Search for Meaningful Reform: A Third-Wave Educational System

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Abstract. It is widely reported that our educational system has some important shortcomings. This paper proposes that such "problems" as lack of teacher incentives, poor student motivation, lack of leadership, and lack of community support are, in fact, just effects of a more fundamental problem. It is the *structure* of our educational system that is at the heart of current problems. For example, it is our group-based, lock-stepped, graded, and time-oriented system that has the dubious distinction of effectively destroying the inherent desire to learn in all but a small percentage of our children. Furthermore, micro computers are accelerating the trend toward increased use of nonhuman resources in the education of our children, and the current structure of our educational system cannot adequately accommodate the effective use of these powerful educational tools. This article describes a general approach and a specific strategy for effecting the needed structural changes, and, also describes some initial progress on implementing that strategy. This initial progress is a preliminary "blue-print" outlining the structural characteristics that a "third-wave" educational system should have.

The recent National Commission on Excellence in Education was created because of "the widespread public perception that something is seriously remiss in our educational system" (1983, p. 1). The Commission's report, entitled "A Nation at Risk: The Im-

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perative for Educational Reform," (1983) cites Paul Copperman as drawing the conclusion that "for the first time in the history of our country, the educational skills of one generation will not surpass, will not equal, will not even approach, those of their parents" (p. 11). The Commission concluded that, "if an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war" (p. 5). As Paul Berman (1985) has recently noted, "The debate is no longer over whether American education is in trouble, but over what should be done" (p. 188).

What is the Cause of our Problems?

Before we can identify what should be done, we must identify the causes of the current problems with American education. The Commission cites poor content (we are teaching the wrong things), insufficient learning time (we are not teaching it long enough), poor quality of teaching (we are not teaching it well enough), low standards and expectations (we are not demanding enough from the students), and lack of leadership (we are not getting the kinds of initiative and direction that are needed from our administrators). But are these really the causes? Or are they symptoms of a more fundamental cause? Two things may be helpful to answer this question: (a) analyzing what goes on in a typical school and (b) looking at ways of improving systems in general.

Imagine you are a high school teacher. You want very much to excite your students about learning. How are you going to go about it? You have been handed a list of over a hundred students in four classes. You have a textbook that you are required to use and a year-end exam for which you need to prepare the students, so that all but a few minutes of class time per

week must be carefully scheduled in advance. On the first day of classes, twenty-five or thirty students will troop into your classroom at the ring of a bell and will troop back out 40 minutes or so later at the ring of another bell, regardless of whether the great moment of insight you have spent the entire class working up to is still two minutes away. The students will come into your class with very different levels of knowledge about your subject; most will not be very interested in it; and practically all will be hoping to be entertained more than educated. You don't really know anything about any of those students as individuals, so you are forced to focus your attention on the content and how you will deliver it to the "average" student in the class, rather than focusing on the individuals you are teaching and how you can address the needs and interests that each of them has.

Is a longer school day really the solution to your problems? Or better teacher training? Or higher expectations? Will such reforms help to sustain a love of teaching in the teacher or to instill a love of learning in the students? Milbrey McLaughlin and associates (1986) at Stanford University have noted:

Many of the current reform efforts aimed at improving the quality of teachers fail to consider the configuration of conditions that leads even the most dedicated teachers to experience demoralization and a sense of personal failure. Indeed, some of the organizational and environmental features that contribute most prominently to this sense of failure are also basic aspects of the current system of education in the U.S. (p. 422)

Similarly, Willis Hawley (1985) notes that "motivating teachers without changing other conditions that affect teaching will not only limit the

effect of incentives, but may cause frustration and alienation" (p. 60). During my years as a high school teacher, I came to understand what many teachers have complained of: that the *structure* of the educational system is the root cause of most of the problems that beset our educational system.

What do we mean when we refer to the "structure" of our educational system? The structure is the basic organization of the teaching process. The major structural aspects of our present system include (a) *group learning*: having knowledge delivered to children in groups of 20 to 40 at a time, such that all children receive the same content at the same time and rate; (b) *constant rotation*: rotating the children from one teacher to another every 45 minutes or so; (c) *time-based grade levels*: requiring all children to "serve" the same amount of time before they are allowed—or forced, as the case may be—to progress to new levels of learning, regardless of when (or even if) they have mastered all the necessary knowledge and skills; (d) *isolation*: having all learning occur within the confines of the school walls and not encouraging (nor usually even allowing) parents or other segments of the community to participate and cooperate in the teaching process; and (e) *administrative organization*: having a single large school in a district, with administrators who are not also teachers and teachers who are relegated to a less influential and professional "staff" role within the educational system.

Of course there are other causes of our problems besides the structure of our educational system. Bad teachers do exist, lack of parental concern for their children does exist, and so forth. But there is increasing recognition that the *major* cause of the current problems with our educational system is the basic structure of that system. TheodoreSizer (1984) states:

Can students learn how to learn to "study," when they are rushed from class to class over a seven-period day, where they are being taught by six or seven different teachers, no one of whom sees them more than five hours per week (and usually in groups of

over 20 students), and when there is rarely any unequivocally reserved time for private study (homework, study halls)? Of course not. ... Until we honestly confront the inadequacy of school structure, we will continue to cheat students, frustrate teachers, and waste money. (p. 37)

In *A Place Called School* (1983), John Goodlad concludes:

... far-reaching restructuring of our schools and indeed our system of education probably is required for us to come even close to the educational ideals we so regularly espouse for this nation and all its people (p. 92).

Anne Westcott Dodd (1984) states:

Band-Aid solutions proliferate: a longer school day and year, more required subjects, more homework, higher pay for teachers. But more of the same is not necessarily improvement. ... America can develop a whole new structure for public education. . . . (p. 685)

Maurice Gibbons (1984) laments, "Ironically, when the old falls into disrepute, we do not make major changes; instead, we focus more intensely on those things we have always done. . ." (p. 691). Selma Wassermann (1984) talks about an alternative system:

in which each learner sets his or her own pace in working toward mas-

1986, p. 530). Ernest Boyer (1983), Seymour Sarason (1983), and Richard Brandt (1981) all advocate some structural reforms, and the list goes on and on. As Paul Berman (1985) put it, "The conclusion is inescapable: American education, as it is now organized, has reached the limits of its effectiveness" (p. 189).

Comparing Systems

Educational systems are like other kinds of systems in many ways. How are other kinds of systems improved? Our transportation system consisted primarily of the horse for a very long time. Like the one-room schoolhouse, the horse was very flexible for meeting the needs of the individual; you could go almost anywhere you wanted to. But, there were problems with the horse. It wasn't very fast or very comfortable, especially in bad weather. Now, some people spent a lot of time trying to reform the prevailing structure by doing such things as breeding faster horses and building better roads and bridges to improve the horse's speed, or making more comfortable saddles and creating carriages for the horse to pull to improve comfort. But the gains to be made were small compared with the development of an alternative structure, the railroad.

The railroad was far faster, more comfortable, more reliable, and more

As we enter deeper into a highly technological, rapidly changing, information-oriented society, the present structure of our educational system will become more and more inadequate.

tery of course material; ... in which teachers play diagnostic and facilitative roles, rather than controlling and judging ones; in which the initiative of the learners is cultivated rather than thwarted . . . (p. 691).

Harold Shane talks about "a growing need to *redesign*—not merely to reform—education in the U.S." (Long,

efficient than the horse. It could transport many more people much greater distances far more cost-effectively. But, like our current educational system, it was much less flexible; you were greatly restricted as to where you could go and when.

As society has continued to change, our transportation needs have also changed. We must travel ever greater

distances in less time, and people need to have much more flexibility as to when and where they will go. Many people have spent much time "fine-tuning" the railroad. But the quantum leap, again, came from an alternative structure, in this case one that entails the use of a variety of transportation modes primarily the airplane and the

houses. Structural reform is one of gradual replacement in places where the societal needs for change are strongest.

The process of structural reform in education will be a slow one for another reason as well. The more advanced our technology, the more room there is for improvement through fine

Information technologies make it possible to create far better learning resources and environments than has ever been possible before.

automobile.

As the one-room schoolhouse, a "first-wave" educational system, was appropriate for what Alvin Toffler (1980) calls a first-wave agrarian society, so our present, second-wave, educational system has a structure and philosophy that were appropriate for a second-wave industrial society. Although there are problems with the industrial production model of schooling (Goodlad, 1983), one cannot help but note some structural similarities to an assembly line, whereby students move from one specialist teacher to another at the ring of a bell to have a new component of education added to them. A "third-wave" system will provide a quantum leap for meeting the changing needs of our society, and like our current transportation system, it is likely that it will make use of a variety of means of learning, including peer tutoring, discussion groups, projects, and group activities of various kinds, in addition to well designed individualized resources and learning environments (Brandt, 1981, p. 148).

Each structural change that has occurred in our transportation system has become possible only by the advance of technology, and in fact technological advances have made the rise of alternative structures inevitable. But the change is never revolutionary; it is evolutionary. Horses are still used for transportation in some places. Many trains are still in use today. And, there are still many one-room school-

tuning a structure. Look at how far the airplane has come since the Wright brothers' early days. How long was it between Kitty Hawk and the first trans-oceanic flight? How much longer until the first jet planes?

Although the change may be slow and gradual, it will also be sure. We can already see technological developments of the "information age" that are making structural reform inevitable. Since the invention of the printing press, there has been a gradual but steady increase in the use of nonhuman resources in the classroom, including textbooks, workbooks, handouts, and audio-visual materials of various kinds. Now, it seems that microcomputers, because of their interactive capabilities, are greatly accelerating this trend. We are already reaching the point where the current structure of our educational system can no longer adequately accommodate the effective use of such resources. As more and better resources become available to relieve teachers of some of their more routine, boring tasks, we are likely to find even greater internal pressure for schools to adopt an alternative structure.

As we enter deeper into a third-wave, highly technological, rapidly changing, information-oriented society, the present structure of our educational system will become more and more inadequate, both from the society's point of view and from the school's point of view, not to mention

the child's point of view. According to Naisbitt (1982), an information society requires a different kind of person, one who is more of an analyzer, evaluator, problem solver and creative thinker, one who has more initiative, more love of learning, and more responsibility for his or her learning and decision-making. A third-wave educational system will provide a quantum leap in producing this kind of person.

In her excellent analysis of school reform reports, Patricia Cross (1984) compares the kinds of structural reform needed in schools with the structural changes taking place in businesses as outlined by Peters and Waterman in their best-selling book, *In Search of Excellence* (1982). She concludes that

In the long run, would-be reformers may be doing more harm than good, if they transmit the message that state officials can legislate and regulate educational excellence without paying attention to the task of creating climates of excellence at the local level. . . I have concluded that our commitment to the lock-step, time-defined structures of education stands in the way of lasting progress. It is simply unrealistic to think that all students can learn from the same materials, to the same standards of performance, in the same amounts of time, taught by the same methods. (p. 170-171)

In sum, as we advance into this information age, our highly regimented, graded, lock-stepped, group-based, and time-oriented rather than achievement-oriented system is less and less able to meet the needs of the individual, the society, and the school itself. Changing the curriculum, lengthening the school day, and legislating higher standards are band-aid approaches to fixing a broken leg, and they are likely to do as much harm as good in the long run.

In reference to the problems cited by the Commission's report, it is the structure of our educational system that renders the selection of *content* relatively insensitive to teachers and parents, the two groups that perhaps should, as a team, have the strongest voice (with information and advice

provided to them by curriculum experts and other concerned people). It is the structure of our educational system that leads to the establishment of minimum *standards* and expectations that are usually tailored to the least capable students in a class. It is the structure of the system that results in a very small proportion of the *time* in school being spent on actively learning. It is also the structure of the educational system that works against *quality teaching* by making it harder to teach well and by diminishing the rewards and incentives for quality teaching. Similarly, the structure of our system does not reward the kinds of *leadership* that are needed, and in fact it often rewards (or at least promotes) good bureaucrats and public relations people instead of good educational leaders.

But if this is true, how do we know that an alternative is feasible now? First, it is certain that an alternative will never be feasible if we don't work to develop it. If current feasibility were a necessary condition, the Wright brothers would never have gotten off the ground. But we are well beyond Kitty Hawk in the development of a third-wave educational system. The alternatives to a group-based, lock-stepped, time-oriented, graded system require the availability of well designed learning resources and environments that are at once highly effective and highly motivating. Information technologies make it possible to create far better learning resources and environments than has ever been possible before, and those technologies are reaching a level of power and affordability that make them cost-effectively competitive for many educational tasks.

But "hard" technology (equipment) is only half the story. We haven't known enough about how to design effective and appealing learning resources and environments to make alternative structures for education feasible. Finally, that situation is changing and has in fact already changed enough so that a third-wave educational system is feasible. (See Reigeluth, 1983). The important question then becomes, "What would be a workable approach for determining

the best structure and for implementing that structure?"

An Approach for Improving Public Education

Many problem solvers in business, industry, and education feel that initial efforts should entail thinking in the ideal, forgetting temporarily about constraints, and later compromising as necessary to implement a workable plan. When working with professors to help them to improve their courses, Syracuse University's Center for Instructional Development has found

education, gradual, piecemeal modifications of the structure of the present system will not achieve the desired result. We need to develop an alternative system with a comprehensively different structure—a quantum leap. The alternative system would then slowly and gradually be adopted by school districts across the country perhaps often as a single alternative school within a district, as it became evident that the new structure would be better for that community's needs. The following is an outline of a strategy for facilitating this gradual transition to a

If we want significant improvement in public education, gradual, piecemeal modifications of the structure of the present system will not achieve the desired result.

that many solutions that are initially thought of as unworkable under current constraints, are in fact workable, and that much better results are achieved by initially thinking in the ideal. In the ultimate analysis, this usually proves to be the most practical of all approaches.

Another important concern with respect to an approach for improving public education is that anything beyond fine-tuning of any system requires system-wide planning and modification. Any system that has evolved over as many decades as has our public education system has certainly developed many interdependent parts; and a basic tenet of systems theory is that, if you try to significantly change one part, the system will almost always work to change it back again. In fact, except in cases where gradual but sustained changes in the environment have caused gradual changes in a system, important changes in systems have not been gradual, piecemeal developments; rather each has taken the form of a quantum leap, followed by gradual fine-tuning (Heuston, 1977). Therefore, if we want significant improvement in public

third-wave educational system.

A Strategy for Significant Educational Improvement

The airplane represents a quantum leap over the railroad in long-distance transportation. And, just as a better long-distance transportation system (the airplane) was planned, developed, and gradually implemented and improved over a significant period of time, so also a better educational system can be planned, developed, and gradually introduced and improved over a significant period of time. In fact, any attempt to achieve widespread adoption of any significant innovation within a short period of time (such as occurred with Dewey's progressivism) is virtually doomed to crash, if it ever gets off the ground. The necessary training and coordination simply cannot occur effectively in such a short period of time, and the ideas and techniques inevitably become perverted and ineffective. Hence, the following strategy is offered:

Phase 1. Develop a comprehensive blueprint for an ideal third-wave educational system, with considerable involvement of educational analysts,

practitioners, reformers, parents, and students. To the extent that it is cost-effective, conduct research and field tests on parts of the system to improve (replace, modify, or supplement) them as much as possible before implementation of the first prototype.

Phase 2. Secure funding from private and government sources to implement a prototype.

Phase 3. Identify the community for implementing the first prototype, perhaps a new community that will be starting up a public school system, or perhaps a large city district in which the new system would function as an alternative school within the current system.

Phase 4. Select or develop necessary instructional resources (described later), train personnel, build or remodel facilities in the selected community, etc.

Phase 5. Open the prototype school and constantly monitor and revise the various aspects of the system until it operates effectively and smoothly.

Phase 6. Build an Institute to publicize results of the system, facilitate its adoption by interested school districts, train personnel (and train schools of education to train personnel), accredit schools (but this accreditation would supplement rather than replace state accreditation), monitor and disaccredit schools, and develop additional edu-

would have changed to the new structure. The limitation is not so much one of expense, for we do not anticipate that teacher training would be any more expensive than it is at present, nor would the buildings and resources be any more expensive. Rather the limitation is one of expertise. It will take time for schools of education to learn how to train the new type of teachers. Hence, the new system will be equally affordable for rich and poor districts alike. In fact, it seems plausible that the districts which are having the most trouble will be the first to want to adopt the new structure (especially if outside funds accompany it for the first year or two), thereby, providing a significant means for redressing current inequality of educational opportunity. We propose that this is a workable and not particularly expensive strategy for implementing a significant improvement in public education.

Initial Progress on a Blueprint

The remainder of this paper reports on some preliminary efforts to develop a blueprint for the third-wave educational system (Phase 1 above). A small team of theorists and practitioners, parents and teachers was organized to work for four months on the initial development of the blueprint. The team decided to focus our at-

from one of disseminating knowledge to one of motivating, advising, and managing the child's learning. Well designed resources (including interactive computer and videodisc systems), peer tutors, projects, and learning labs are used to convey most skills and knowledge. A teacher is responsible for a child for a period of three to five years. And the school district contains a variety of small, competing "schools" for parents to choose from (all at no cost to parents, and with no power for any school to turn any child away, thereby providing a degree of diversity and simultaneously a degree of accountability that are both sorely lacking in the present system). These and other aspects of the structure of an ideal educational system are described next. However, it is important to keep in mind that this blueprint is not likely to be a solution to all our nation's educational problems. We hope it will help to encourage new ideas and to further developments in the design of a better school system.

Teachers as Guides. Most people who have advocated structural reform of our schools have called for a different role for teachers, a role that is more professional and that relies more on technology to free the teacher from routine tasks and drudgery. Accordingly, in the third-wave educational system, the relationship between the teacher and the child is not one of purveyor and receiver of information. First, not all learning occurs in schools; the parents and the community are important sources of learning. Therefore, one of the teacher's roles is to orchestrate and coordinate efforts by parents, community, and school. Second, within the school, most knowledge is conveyed through well designed resources (including objects, printed materials, and interactive computer-based instruction), inexpensive assistants (including apprentice teachers, senior citizen volunteers, parents, and peer tutors), projects, discussion groups, learning labs, and resource people.

Hence, the teacher is more a guide than a teacher, as is the case in the Montessori system, which has functioned extremely well in this mode.

Anything beyond fine-tuning of any system requires system-wide planning and modification.

cational resources.

Adoption would be a local school district decision, and there would be severe limits on the number of new systems that could be implemented each year, because of the training and "retooling" requirements that could realistically be handled by the Institute. Within 10 years of the implementation of the prototype school, it is likely that fewer than five per cent of the nation's public school districts

tention on the *structural aspects* of an educational system, both because there is so much evidence that the current problems lie primarily in the structure of the system and because they felt that the people of a community should decide on the goals and content of their children's education.

Overview

In our third-wave educational system, the teacher's role has changed

The role of the guide is one of motivating, advising, and managing the child, rather than delivering most of the content knowledge. The guide is a conductor rather than a musician. She or he is an instructional manager who helps the child and parents decide upon appropriate instructional goals (within limits) and then helps identify and coordinate the best means for the child to achieve those goals. And, those goals go beyond the intellectual development of the child; they may extend to the child's physical, social, moral and psychological development, depending on the parents' wishes.

Guides work individually and in small groups with children to insure that they reach their goals. Therefore, there is no such thing as a "class" in the sense of a group of children who learn the same material in the same place at the same time for a whole term or academic year. (There are, however, occasional discussion groups and seminars, which are especially useful in such areas as literature; and some mini-courses utilize class meetings when better alternatives are not available.) Each child has individual educational goals and could be matched to a unique combination of resources with the help of a computer-based advisement and management system. The cost-effectiveness of this system is very promising and is discussed later.

Developmental Levels as "Grade Levels". In the third-wave school system a guide is responsible for each of his or her students for one of the developmental stages of the child's life: a period of approximately 3 to 5 years. On the basis of work by Piaget, Erikson, and others, we currently conceive of four stages as being relevant to the school system: approximately ages 3 to 5, 6 to 9, 10 to 13, and 14 to 18. The school organization is structured around these four levels, enabling each guide to work with a child for an average of four years. Either the parents or the guide can request a change before the child has entered the next developmental level, but there is a "test period" of, say, 6 months during which no changes are allowed. The process whereby parents request a guide is

described next.

Parents Choose Guides. Parents request a guide for each of their children. On the basis of information made available by an independent "consumer reports" type of district office and on the basis of word of mouth and interviews with guides, the parents request, in order of preference, about three to five guides (depending on the size of the school district). The "consumer aid" office also provides diagnostic testing and interviews to help parents make the best decision, or to make it for them if they are not interested. Each guide decides how many children to

ter guide is an active teacher. But the master guide also has a variety of other responsibilities, foremost of which is instructional leadership for the cluster. Ultimately, the master guide has the major responsibility for the success of the cluster.

Incentives and Rewards. The cluster's success depends on how satisfied the parents and children are, because its income depends in part on the number of first, second, and third choice requests for all of its guides. But, it is the income of each cluster that depends on demand for its guides, not the income of each guide directly. A guide's salary

In our third-wave educational system, the teacher's role has changed from one of disseminating knowledge to one of motivating, advising, and managing the child's learning.

accept each year, but does not decide which children to accept; that is decided by a formula that maximizes the number of first choices filled district-wide.

"Clusters" as Independent Schools. In other professions like medicine and law, professionals often work together rather than independently; and, unlike teachers, they maintain a high degree of decision-making participation in, and control over, the organization. In a similar way, even though parents choose an individual guide, that guide does not work independently, but is a member of a "cluster" of guides. A cluster usually consists of about 3 to 6 guides, their assistants, their students, and a leader, who is a "master guide".

Like a lawyer in a law firm, each guide has considerable responsibility for the success of the cluster, and considerable incentive to meet that responsibility (see next paragraph), and considerable power to meet that responsibility. In the present system, teachers are given the first but not the last two! Is it any wonder that the structure works against good results! Just as the "administrator" of a law firm is a practicing lawyer, so the mas-

ter guide is based only on the number of students he or she has and the cluster's gross income. Hence, there is considerable incentive to help any guides in the cluster who are not doing well. This results in a nice combination of competition between clusters (providing incentive for excellence and responsiveness to the community's diverse desires and needs) and cooperation within each cluster (providing support and encouragement among guides), not unlike that characterizing most other professions.

With respect to competition, the dependence of cluster income on parental satisfaction makes guides very accountable for what they do or don't do. If a cluster is doing a bad job of meeting parents' expectations, its income will fall, as will the income for all of its guides. With respect to cooperation within each cluster, the fact that a guide's income depends not only on his or her own efforts, but also on the success of the other guides in the cluster, results in a much greater incentive to cooperate and help each other to insure that all the cluster's children do as well as they can.

Learning Labs. In the fields of law,

accounting, and medicine, the general practitioner has access to specialists in different areas. In a similar way, the guide has access to various learning labs. A learning lab provides instruction in a specific subject area. It can be a traditional, discipline-oriented area such as biology or a cross-disciplinary, problem-oriented area such as pollution. These learning labs operate completely independently of the clusters.

All children in the school district receive a certain number of tickets or passes that entitle them to use the learning labs. The labs in turn receive their budgets on the basis of the number of passes that they collect, so there is considerable incentive to attract students and satisfy cluster guides' needs. Again there is a nice combination of competition between labs and cooperation within a lab. We currently envision three types of learning labs: "shopping mall" labs, site labs, and mobile labs. They are described in some detail later.

In summary, the major aspects we currently envision for the third-wave educational system are the following:

1. Teachers are guides who, in cooperation with the child's parents, motivate, advise, and manage a child's education for three to five years.

2. Resources (including well-designed materials, peer tutors, projects, discussion groups, learning labs, and resource people) are used to effect most of the learning.

3. There are no traditional classes, but each child has individual goals, and a unique combination of resources and approaches is prescribed to reach those goals.

4. Guides work cooperatively within an educational cluster with about two to five other guides, including a master guide.

5. The master guide sets the school climate and philosophy, hires guides and assistants, provides professional development for guides and assistants, and provides direction and leadership for the whole cluster.

6. After a trial period, parents are free to request to move their child to another available guide and cluster if they are not satisfied with their child's

progress. Hence, individual guides and clusters are very accountable for what they do or don't do, and they have considerable incentive to work with parents.

7. Guides have a great financial incentive to cooperate and work together for the success of the whole cluster.

8. Guides can send children to learning labs of various kinds to receive the best available instruction on selected subjects.

The following is a more detailed description of the various aspects of the structure of this third-wave educational system.

Cluster Operations

Because the guide is the hub of this educational universe, we shall further describe the structure of the system on that level. As was mentioned above, every guide must belong to a cluster, which is much like a small law firm or medical clinic. Also, a guide is responsible for children for one complete level of development (approximately four years). In an exceptional case, a guide might prefer that his or her students be spread out over two or even three levels rather than just one. In such cases, it is probably advisable that children switch to the next guide upon transitioning to the next level.

Each guide often uses apprentices (training to become guides), advanced students, and volunteers (including parents, senior citizens, and other members of the community) as assistants to help teach his or her students. Many receive credits for their services rather than money. Those credits entitle them to personal use of the learning labs for continuing education or the child care center for care of their own children. Tutoring is also a valuable experience for students. Students are a very much overlooked resource that can save a school system much money, improve learning, and result in even greater benefits for the tutors. But they must have proper training and guidance to be most effective (Frey & Reigeluth, 1986).

At this point, our best guess is that in Level 1 (ages 3 to 5) each guide is responsible for about 25 children; in Level 2 (ages 6 to 9) about 35 children;

in Level 3 (ages 10 to 13) about 45 children; and in Level 4 (ages 14 to 18) about 55 children. These differentials reflect the increased use of learning labs as the age level increases. The services of apprentices, advanced students and volunteers considerably lightens the load of each guide. These figures are our best guess at present, and experience may reveal better figures.

As mentioned earlier, each guide decides how many children to accept; that is, what portion of a "full load" to accept. The importance of parent satisfaction keeps this figure from becoming too large, and the guide's personal income needs keep it from being too small. But if a guide wants to work half time on, say, writing a book or computer program, then he or she can do so by accepting fewer students (and receiving a lower income).

Anywhere from about three to six guides can comprise a cluster. With 4 guides in each cluster, there would be one guide on each of the four developmental levels, assuming that the cluster elects to serve all four levels. Such a cluster would have about 160 children spread out over the ages of 3 to 18. This means that there would be an average of about 10 children of any given age within the cluster. If the cluster serves only two developmental levels, there would be an average of about 20 children of any given age within the cluster. This size allows the children to get to know most other students in the cluster fairly well, resulting in a more friendly and caring environment and more cross-age interaction.

Specifics by Level

In Level 1 the guides are very similar to Montessori teachers (Standing, 1962). They introduce children to well-designed educational resources as the children become ready for them, and the resources do most of the teaching of knowledge and skills. The guides also arrange activities that help develop the child socially, emotionally, and physically (motor coordination). Children are exposed to a variable environment in which caring guides and assistants nurture their development and en-

courage them to alternate regularly between learning activity and social interaction, free play, exercise, and/or rest.

Most learning at this level takes place within appropriate cluster facilities, but field trips are occasionally taken so that the outside environment can influence the children's development. Mobile labs (discussed in the next section) and other outsiders (including parents) occasionally come and put on a program to enrich home-room activities.

Parents can leave their child in the cluster facility as long as they wish, but there is a charge if the child is left for more than six hours per day. This charge can be paid in money or in time contributed to the cluster. The more advanced children occasionally participate in activities in a Level II group. This facilitates their transition into the next level with a minimum of anxiety (even if the child advances to a different cluster). The timing of the full "graduation" to the next level is made in consultation with the parents and is based on a combination of the child's intellectual, social, and emotional development, including level of learning skills and degree of self-directedness and responsibility.

In Level 4, the opposite end of the developmental spectrum, the cluster facility is more of a conference room than a home room and activity room. Almost all content learning occurs in the learning labs, including lab-sponsored seminars, projects, and tutoring sessions. Also, intellectual scavenger hunts entailing interdisciplinary problem solving are widely used. Guides spend much time monitoring and motivating the children and just plain caring. Much time is also spent in individual conversations, for the guide is more a counselor (an educator in the true sense of the word) than a teacher. In the domain of cognitive development, those conversations are often directed at higher levels of knowledge, including synthesis and evaluation in Bloom's taxonomy (Bloom, 1956) and cognitive strategies (or generic skills) in Gagne's taxonomy (Gagne, 1977). Service projects are often required of students.

The guide also works closely with the parents on such other concerns as the child's emotional, social, artistic, moral, and psychological development. This entails (a) identifying with the parents any aspects of development that need work or any obstacles to further development that need to be removed, and (b) developing an appropriate plan that entails certain parental actions as well as certain guide actions of which the parents approve. As parents who have occasionally felt as if we were at our rope's end with one of our children, we feel it should also entail providing advice, when desired by the parents, on how to handle behavior problems and how in general to increase the quality of home life.

On the intervening levels (II and III), the guides serve both roles described above (for Levels I and IV). The degree to which each role is played by the guide progresses as the child develops from a Level I person to a Level IV person.

At whatever level, each guide must abide by a "renaissance approach" that establishes certain minimum levels of development in each of a broad range of basic areas (including basic skills). As long as the minimum levels of achievement are met in all areas, the children can study whatever they want, whenever they want. As might be expected, the yearly levels vary depending on the general ability level of the child. For example, a child with an IQ of 50 is not expected to achieve the same minimum levels as one with an IQ of 150. Benjamin Bloom has evidence to suggest that the differences in rate of learning that currently exist in our schools are more a function of differences in accumulated knowledge than of differences in "intelligence" (Bloom, 1976). The emphasis is on each child achieving according to his or her potential. For late bloomers the minimum levels are adjusted to represent relatively larger steps.

The guide maintains an achievement profile on each of his or her students on a computer-based advisement and management system. Grades are not given, because in an information society a profile of the kinds of abilities and knowledge one has is more important

than a letter grade or a general rank in class.

There are cluster-wide and district-wide interest groups and clubs, dealing with such interests as computers, drama, photography, woodworking, music, chess and dance.

There are also cluster-wide and district-wide social events and athletic events. A major benefit of this structure is a much higher rate of student participation in athletics and other interests. Opportunities for leadership and exercise of responsibility are also increased (Brandt, 1981). Volunteers (parents, senior citizens, and other community members) and older students do much of the supervision, much as is presently done with Little League baseball and Scout programs.

Learning Labs

It was mentioned earlier that learning labs provide specialized expertise on different subject areas; and we have recently seen that the older the child, the more the labs are used. A learning lab can be for a traditional, discipline-oriented area such as biology or for a cross-disciplinary, problem-oriented area such as pollution; and, it can be for an intellectual area such as philosophy or for a technical area such as automobile maintenance and repair. In all cases, labs would be encouraged to incorporate instruction in thinking skills and other higher-order skills into the content area instruction, and guides would be responsible for helping the student to put together a program of study that represents a good progression of such higher-order skills instruction. Resources are allocated to the labs on the basis of their usage, providing a combination of co-operation and competition similar to that for the clusters.

We mentioned earlier that there are three types of learning labs: mobile labs, shopping mall labs, and site labs. The mobile labs are labs on wheels that travel around from one cluster to another and even from one district to another. The shopping mall labs are centrally located labs to which the children in a district go. They range from a one-room, one-person (part-time) "craft shop" operation to a nationwide

operation (the Sears of the shopping mall labs). There tends to be continuous (although not too frequent) turnover as the "offerings" adjust to changing times and changing demands. Also, there are cooperative arrangements whereby children may use labs located in another school district. The site labs are located at the part-time organizations which sponsor them, such as museums and businesses. Tax write-offs are an important incentive for the creation of such labs.

All learning labs must be approved and periodically recertified by the school district's Lab Management Organization (described later). Learning labs can be started by almost anyone in any subject area, including

and would allow for district facilities such as library, auditorium, child-care facilities, and food services to be easily accessible to all clusters, while still maintaining some physical separateness for each cluster. (Although food preparation could be done centrally, each cluster should have its own cafeteria to help build cluster cohesion.) Very large districts might have several such "wheels" at different locations within the district. Although such a logistical arrangement might be ideal, existing school buildings could be utilized with relatively few modifications to meet the same needs.

At the beginning of each quarter (three month period), each student in the district is awarded a certain num-

usage into the district-wide, computer-based, advisement and management system. Teacher approval would be entered into the computer system, and the system would reject any child who tried to log in to a lab without such approval. Each lab allows each student a minimum of one hour of free browsing every quarter for purposes of seeing if there is anything he or she would like to learn in that lab. Of course, the lab receives remuneration from the school district for such browsing.

Having a limited supply of passes to use in a quarter, the children are more concerned with making the most of each one—that is, not wasting precious time hacking around. And having the flexibility to study what they want when they want (within the structure of the minimum requirements and the other goals specified in each child's quarterly contract) provides heightened motivation and increased self-determination and self-management that are so important in an information society.

In our ideal educational system, as long as the minimum levels of achievement are met in all areas, the children can study whatever they want, whenever they want.

cross-disciplinary areas, but certain training and standards (especially regarding character) are required. A learning lab director runs the lab; and depending on the nature of the lab, the director finds out about and makes available top-quality resources, plans good activities, makes arrangements for community-based experiences, hires, trains and monitors assistants (apprentices, advanced students, parents, and other members of the community) to help teach, and/or interacts personally with children to motivate, advise, and manage their learning within that specialty area. Teachers refer their students to specific learning labs and even to specific personnel in a learning lab. Many learning labs are run by part-time amateur-hobbyists and retired people at very little expense to the school district.

Logistically, the shopping mall labs would likely be located at the "hub of a wheel" in which the clusters are located in separate buildings out on the "rim," attached by enclosed walkways ("spokes"). This arrangement would eliminate the need for transportation

and would allow for district facilities such as library, auditorium, child-care facilities, and food services to be easily accessible to all clusters, while still maintaining some physical separateness for each cluster. (Although food preparation could be done centrally, each cluster should have its own cafeteria to help build cluster cohesion.) Very large districts might have several such "wheels" at different locations within the district. Although such a logistical arrangement might be ideal, existing school buildings could be utilized with relatively few modifications to meet the same needs.

Some of the passes are restricted passes and some are open passes. The restricted passes must be used for the study of skills and knowledge specified by the child's "quarterly contract" (see below), whereas the open passes can be used to study anything. This results in a combination of structure and flexibility.

Each pass must be filled out and signed by the guide, who indicates the lab in which it is to be used. This helps the guide to influence and keep track of the child's learning. The child hands in the pass to the lab, so that the lab can then cash it in for payment from the district office. The passes could be implemented electronically with magnetic ID cards and electronic time clocks that feed data on student and lab

What the Student Does

At the beginning of each quarter, the guide sits down with each of his or her students and the student's parents, if possible. Together, they prepare a plan or contract for the child's learning goals and activities for the quarter. As a result of this plan, a checklist of required goals and activities is prepared (probably with the help of the computer-based advisement and management system), and the use of restricted passes is planned. However, the plan is devised in such a way as to leave some time for children to pursue their own interests with their open passes, whose use is also discussed and informally planned at the beginning of each quarter.

The intent here is to establish a balance between structure and flexibility. Each cluster may establish its own policy (or lack thereof) with respect to the balance between requirements and options, except that the district may establish certain minimum levels of development in different areas for different age groups (perhaps adjusted by individual limits to rate of development as measured by, say, IQ or some better

indicator).

At this time, the guide and parents may also have a private conversation about any problems the parents are having with the child so that the guide can give advice and/or take steps to help out. The guide also identifies things the parents can do or need to do to help the child achieve his or her quarterly goals (not just intellectual, but also emotional, social, artistic, physical, etc.).

At the end of each quarter, the guide sits down with each child and the parents (although two separate meetings would not be uncommon) and reviews the child's achievements in relation to the contract for the quarter. This provides part of the basis for planning the next quarterly contract, which usually occurs at the same session.

District Organization and Administrative Systems

All school tax revenues, block grants, and state aid go directly to the school district office for district-wide distribution. The district office establishes a budget for clusters (probably by establishing an amount per pupil and multiplying by the number of pupils anticipated for that year) and a budget for the Learning Lab Management Organization (probably by establishing an amount per pass and multiplying by the number of passes anticipated for that year). The budget for clusters is allocated to each cluster in accordance with the demand for its guides. The budget for the Learning Lab Management Organization is allocated to each lab in accordance with the number of passes it receives, except that a certain per cent is kept to meet its administrative expenses. Finally, the Consumer Aid Agency receives a flat percentage of the total school district budget (around one-half of one percent), and the district office keeps a flat percentage for its administrative expenses.

Cluster Organization and Administration. A new cluster can be started by anyone who meets the requirements, but a cluster can be disbanded if it ever fails to meet minimum standards, set by the school board (and individual personnel can be "disbarred" if they are found by the district review board

to be negligently unprofessional). It is probably wise to specify a minimum of two or three guides for forming a cluster. Training and certification are required for anyone who wants to be a guide. This training and certification would be provided by schools of education that have been certified by the Institute. Some local training may also be required regarding the district's computer-based advisement and management system and current learning labs. The master guide is chosen by the guides that comprise the cluster, and a two-thirds majority is required to replace the master guide.

For an established cluster, the hiring of new guides is decided by a two-thirds majority of the cluster's guides. The firing of a guide would be based on standards that are clearly laid out in the charter of the cluster or school district regulations, but those standards should allow a sufficient length of time for new guides to improve and for older guides to reform their ways. Because of the importance of cluster cohesiveness and cooperation among guides, a simple majority is sufficient for a cluster's guides to decide whether or not the criteria for release have been met. There is no grievance or appeal procedure, again because of the importance of cluster cohesiveness and cooperation among guides. There is no grievance procedure when a lawyer or doctor is kicked out of a law firm or medical clinic, but such is extremely rare.

An administrative person from the district office is in charge of the accounting, reporting, and logistical aspects for all clusters within the school district, but the cluster decides how its budget will be spent. This frees the head guide to concentrate on instructional concerns and school climate.

It was mentioned earlier that each cluster's gross income is dependent on the total demand for its guides. A point system is used whereby each guide receives 3 points for being the first choice of a "new student", 2 points for being the second choice, and 1 point for being the third choice. A new student is one entering a new level of development, one entering the school system for the first time, or one requesting a

new guide after the six-month trial period. The income rate for each cluster is determined solely by the cluster's total points divided by the number of guides in the cluster. The cluster's budget is then determined by adjusting that income rate according to the average percent of full capacity for its guides (determined by the actual number of students divided by the full-load number of students for each developmental level). In turn, the guides' salaries are based only on cluster budget and individual load—no merit—and are a percent of the cluster's gross income. Hence, the only way to increase one's salary, as in a law firm or medical clinic, is to increase the demand for the cluster's guides. In this way, there is a tremendous incentive to cooperate within each cluster. All master guides receive a fixed salary supplement set by the school board.

It might be beneficial to have two levels of guides based on merit, such that a beginning guide would likely not receive the same salary rate as a veteran guide. However, this raises difficult questions as to who should make the promotion decision. Alternatively, it might be beneficial to allow each cluster to set its own salaries, for the guides will know that if their other budget categories suffer, parents will be displeased and the cluster's points and budget for the next year will be lower.

Some districts may also want to allocate a certain fixed dollar amount per student to each cluster's budget, to partially even out the expenditures per student across clusters. However, it should be understood that the more the cluster (and lab) budgets are influenced by demand for them, the easier it will be for superior ones to grow and thereby offer a better education to more students in the district. It will also be less necessary for the district office to close down weak clusters (or labs) by executive mandate, which is likely to be politically difficult, if not impossible. This will be less necessary because insufficient personal incomes will lead the guides in less successful clusters to seek more lucrative positions on their own initiative. In the long run the community will be better off by rewarding excellence and not encour-

aging mediocrity to linger on.

Learning Lab Management Organization. There is a Learning Lab Management Organization which has the following responsibilities:

- It surveys the needs of the clusters for external instructional support from labs and prioritizes those needs.

- It contracts new learning labs. These may be (a) part-time individuals (e.g., a retired biologist who lives in the community and is willing to devote a part of her time to the school district), (b) part-time organizations (e.g., a local museum or business which is willing to devote a part of its time to the school district), (c) full-time individuals (e.g., a mechanic who would like to quit his job and work full-time with kids), and (d) full-time organizations (e.g., a publishing company that has established a subsidiary for running learning labs in schools across the country).

- It trains lab directors whenever necessary, and it provides professional development support services to the labs upon request.

- It distributes money to the labs according to the amount that each lab is used.

An administrative person in the district office is responsible for the accounting, reporting, and logistical aspects for all labs within the school district, but again each lab decides how its budget will be spent.

Consumer Aid Agency. The district-wide Consumer Aid Agency which was mentioned earlier serves (a) as a placement counseling service for matching children with guides and (b) as a watchdog service for providing consumer reports on clusters, guides, and learning labs (explained below). This Consumer Aid Agency is run by parents (many on a volunteer basis) but receives a permanent fixed budget (something like one-half of one percent of the total district budget) as part of a system of checks and balances.

The Consumer Aid Agency's *counseling service* helps parents to decide which guide will be best for their child. It maintains extensive data on each guide's characteristics and accomplishments, and it diagnoses a child's needs, if parents so desire, so as to enable them to select the guides which

seem most likely to meet those needs. Such people-categories as "intuitive" and "thinker" may be very useful for part of this function.

The Consumer Aid Agency's *watchdog service* has responsibility for collecting and disseminating information about the quality of performance of the clusters, guides, labs, and Lab Management Organization.

Given that some parents do not care enough to choose a guide for their child, the placement service diagnoses each such child's needs and applies for the most appropriate guides. However, such applications are not included in the point count described under *Cluster Organization and Administration* above, to avoid the temptation for dirty politics. Federal, state, and local supplements for disadvantaged children would be passed through the district office directly to the clusters' budgets.

Cost-Effectiveness

No thorough cost analysis has been performed as yet, but preliminary indications are that this system would cost approximately the same per student as our present system, yet would be considerably more effective. Although guides are paid more than present teachers, their various assistants (apprentice guides, volunteers, and older students) cost considerably less. Their use enables a much higher student-guide ratio, but with increased human contact and caring.

The learning labs are the element that may most influence costs. The number of labs and relatedly the number of passes provided to students each quarter will greatly influence the cost. Also, the extent to which the labs are staffed and/or directed by volunteers or semi-volunteers (those who accept nominal payment to supplement retirement or other income) will also greatly influence the cost.

In a small school district, it might be wise for each guide to also serve as a lab director, with fewer students to guide. We presently anticipate that this entire system can be run within present school budgets, especially given that local businesses, foundations, and individuals would be considerably more

inclined to sponsor learning labs, including basic-skill and content-area shopping mall labs, as well as more application-oriented and problem-oriented site labs.

Conclusion

Much work needs to be done to further develop, field test, and refine this blueprint of a third-wave educational system to the point where we can begin to think about implementing it in a pilot school. And, this only represents the first step in a systematic strategy to make significant improvements (a quantum leap) in our educational system. Although the road to meaningful, structural reform of public education is long and difficult, we feel that the strategy and approach are both very sound. With persistence and dedication from a national coalition of concerned citizens, we feel confident that we can achieve very significant improvements. We would be interested in hearing from anyone who would like to be a part of this effort.

tional Leadership, pp. 34-37.

Author note. I am deeply grateful to Ruth Curtis, Bonnie Keller, Bonnie Lang, Don Parks, and Joe Powell for their considerable input into the development of the ideas presented in this article.

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Lessons from the trenches

EDUCATION ■ TheodoreSizer has a grand vision of salvaging our ailing schools. But his pioneering efforts at reform show why they are still a mess

The rhetoric is familiar, and so are the results. Seven years after a blue-ribbon commission warned, "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war," America's public schools remain mired in mediocrity. Last month, in what has become a depressing quadrennial exercise, a government-sponsored National Assessment of Educational Progress report indicated that most 17-year-olds cannot read well enough to understand a newspaper editorial. And although they won't admit it, parents, educators and corporations are privately wondering to themselves: Are America's schools a lost cause?

No one is better qualified to answer that question than Theodore Sizer. The respected, 57-year-old former Harvard education dean and current Brown University professor has been laboring in the educational trenches the past six years, logging thousands of air miles traveling among the Coalition of Essential Schools, a network of 52 reform-minded schools that he organized in 1984.

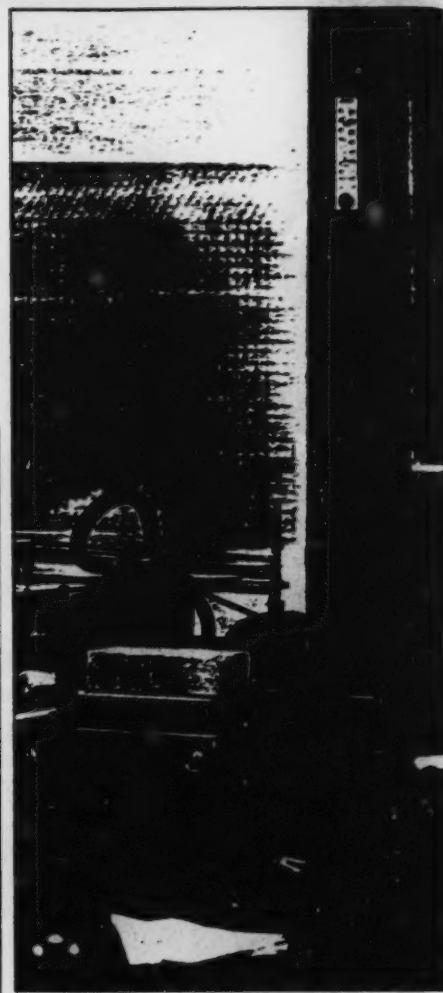


Mind on reform. Sizer

Drawing on 1960s progressivism to achieve today's goal of rigorous academic standards, Sizer urges radical reforms, such as the abolition of the traditional eight-period day and a "less is more" teaching philosophy that has students studying a few topics in depth rather than racing pell-mell through textbooks.

To Sizer, the nation's secondary schools have become vast, impersonal "shopping malls" that present intellectually docile students with a smorgasbord of courses but fail to teach them the basic academic subjects solidly. Despite his professorial demeanor and a career that includes a decade as headmaster of Massachusetts's prestigious Andover academy, Sizer is a populist. He believes all students, not just the college-bound, can thrive on rigorous academic courses, not merely electives like shop and typing.

Under the right circumstances, Sizer's bold prescription can work. In the few schools where his ideas have taken root, dropout rates are down, attendance and test scores are up, more students are going to college, and there is a genuine enthusiasm for teaching and learning. Indeed, the coalition's flagship, Central



Ideas in motion. Student David Gilbreth of Hop-

Park East Secondary School in East Harlem, has emerged as one of the nation's most heralded public schools since its founding in 1985 (see page 54).

Sizer's ideas now resonate from the White House to state capitals. Last month, Citicorp, the financial giant, gave Sizer \$3 million, and a multimillion-dollar anonymous grant is forthcoming. He

THE KEYS TO SCHOOL REFORM

At the heart of Theodore Sizer's reforms that aim to bring principles reflecting a popular mix of 1960s student-centered learning and an emphasis on rigorous performance standards.

1 Academic focus

The paramount purpose of public schools should be to teach students. To learn to use their minds well. Schools should not be comprehensive at the expense of intellectual rigor.

2 Less is more

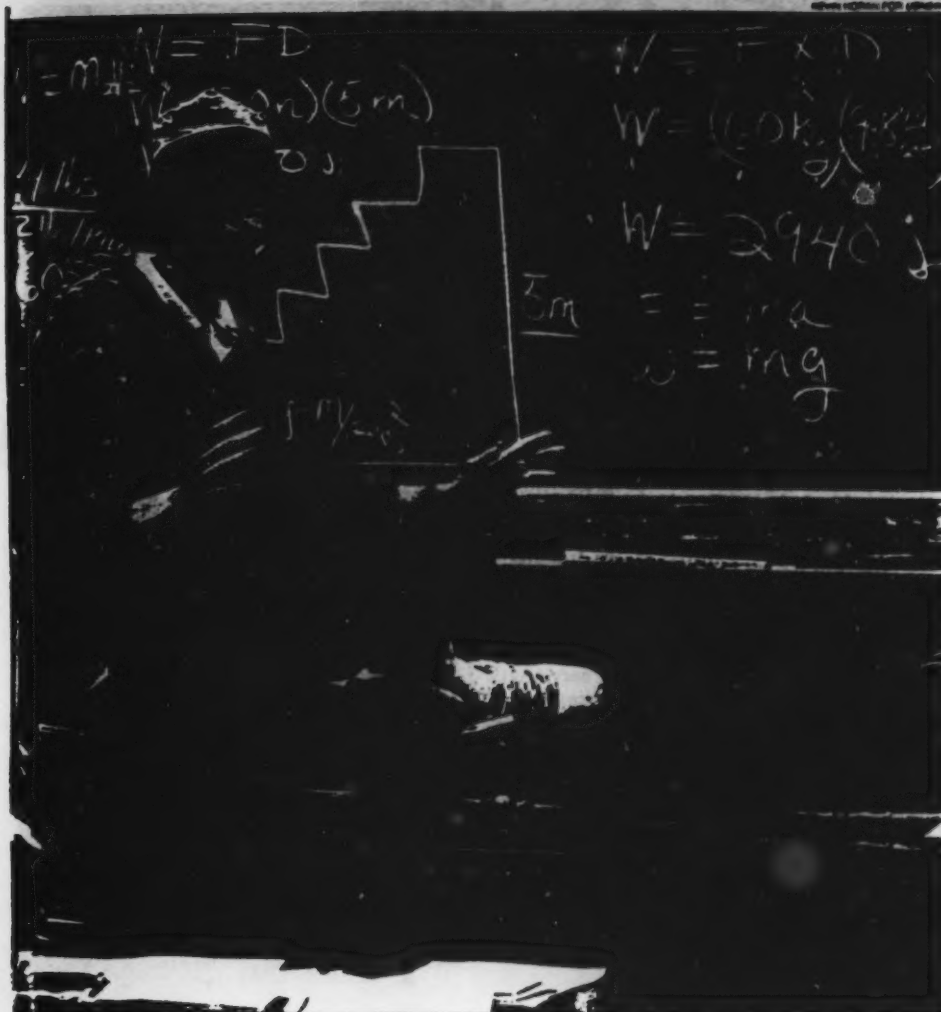
Teachers should teach fewer topics more deeply and not be slaves to a syllabus or textbooks. Mastery—not coverage—should be the schools' watchword.

3 Universal goals

Academics should be a priority for all students. No student should graduate with a purely vocational education. An intellectual education is every citizen's right and need.

4 Personalizing

To reduce anonymity, teachers should teach no more than 80 students each semester. Flower over schedules, teaching materials and curriculum should rest with the teachers and principals.



essential High School in Providence, R.I., demonstrates principles of physics and school reform

seemingly has all the ingredients for success: A credible recipe for reform, lots of money and a number of schools committed to making improvements.

But Sizer's laboratories of reform are struggling, as he readily admits. A host of obstacles have hindered the reform effort, many of them having to do with human nature: Fears, jealousies, entrenched hab-

its. A close look at Sizer's experience—his frustrations and his successes—shows the difficulty of translating principles into practice in the trenches.

The enemy within. Teachers, the very people who should be advocating reform, have posed one of the biggest obstacles. Far from embracing new ideas, teachers often feel threatened by them.

Improvement still means change, and change—both real and imagined—challenges teachers' routines, values and, sometimes, their livelihoods.

Even in schools where the faculties have volunteered to join Sizer's coalition, teachers have resisted his emphasis on academics at the expense of an array of electives, fearing it will mean scuttling many of the courses that they believe "comprehensive" high schools should offer. At Brighton High School, near Rochester, N.Y., teachers recently voted to leave the coalition, in part because they feared losing their jobs. That concern had been stirred years earlier by the dismissal of a home-economics teacher, and the teachers of courses like physical education and business skills saw Sizer the academic as a threat as well.

This kind of faculty opposition to curriculum pruning has made it impossible to free up enough time during the school day for smaller, longer and more in-depth classes, a move that Sizer and other reformers insist is essential to turning education around. The conventional 45-minute class period, Sizer believes, does not permit the kind of extended discussion required for students to get below the surface of a topic and seriously exercise their minds. In the Houston suburb of The Woodlands, for instance, faculty fears about schedule changes, echoed by the surrounding community, scuttled coalition membership. At McCullough High School in 1985, Principal Joe Westmoreland had expressed interest in joining the coalition, and Sizer flew south to address the local Rotary Club, in the hope of winning community support for his program. But the staff and the community feared that coalition membership would

5 Student as worker

Teachers should model themselves after athletic coaches, advising and encouraging students rather than lecturing at them. Students should be "workers" who labor at their own education.

6 Demonstrating competence

Students should be passed only after showing mastery of subjects. Multiple-choice exams should be replaced by essay and projects that answer "essential questions" about course content.

7 Attitude

Schools should foster decency, trust and high expectations. Parents should be essential collaborators in promoting their values.

8 Staff

Teachers and administrators in schools should share teaching, administrative and counseling duties. Teachers should be generalists, willing to teach more than one subject.

9 Budget

Better schools need not be expensive. The cost of running high-quality schools should be roughly equivalent to that of traditional schools.

sink extracurricular activities that, in Texas, are often taught as "classes" during the regular school day. Football is a special concern in the town, where attendance at the local AstroTurf-clad stadium often tops 10,000. Given the restructured school day recommended by Sizer, team members would have found it difficult to meet for drills. After a deluge of angry phone calls, coalition membership was scrapped before even coming to the school board for a vote.

Cynical veterans. Frequently, the most vehement opposition to change comes from veteran teachers who have had to endure one pedagogical gimmick after another. At Hope High School, near Sizer's Providence, R.I., headquarters, Sizer was up against the deep-seated cynicism of teachers who had endured racial violence, 12 principals in 13 years and deep staff cuts. Since teachers are "rified" by seniority, only the school's most senior teachers survived the layoffs, and many of them mistrusted the Ivy League reformer. Only after a year of heated negotiation did Hope's suspicious faculty permit the creation of a Sizeresque "school within a school"—a program with only five teachers and 100 students, about one tenth of the student body. Since then, tension between coalition teachers and the school's "regular" faculty has been tremendous; to many regular teachers, Hope Essential High School is "Hope Superfluous." The



backbiting underscores how teachers who "put their necks out are viewed as troublemakers; they are ostracized," says Sizer. Indeed, despite its high test scores, the Hope Essential school remains a limited program, confined to one floor of the Depression-era building.

Ironically, Sizer has encountered as much teacher resistance in affluent sub-

urban schools as he has in beleaguered inner-city schools, though the reasons are different. At Brighton, for instance—"a BMW and Benetton kind of place" by one student's description—teachers argued that change was not needed since high percentages of their graduates were already going on to college. Sizer was unsuccessful in shaking

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Study in contrasts. McMullough High School in The Woodlands, Tex., rejected Sizer's reform principles early on, in part out of fears that elective courses like typing, above, would be abolished. Head teacher Wendy Aronoff, left, of Hope Essential High School in Providence, R.I., has scrapped the system to coach her student-centered discussions of literature

their complacency with his contention that even many college-bound students are intellectually docile.

No school, Sizer has learned, can be improved without a principal who is reform minded and able to lobby artfully for change. That was not the case at Brighton, where many teachers feel the coalition was thrust on them by Princi-

pal Tom Jones. As one faculty member warns, "When you impose stuff on us, we'll rebel." Such bitterness helped kill Brighton's limited attempt at reform, leaving the school with little more than a few reformed classrooms and a lone Coalition of Essential Schools coffee mug on Principal Jones's desk.

Even when teachers eagerly embrace reform, those who can easily break out of old classroom habits are a rare exception. In history teacher Bob Henschen's class at Westbury High School in Houston, students carry on a spirited debate about the turn-of-

the-century labor movement. Some argue the employers' point of view, others take the workers' side. Henschen moves around the room Donahue-style, asking questions of both groups that leave them momentarily stumped. Then he retreats to the back row and lets the debaters take over, injecting only to push them deeper into the subject. "I want to know

why, why you think that. Why?"

A freewheeling classroom style is not for everyone, however, and some find it downright threatening. It means relinquishing a degree of classroom authority, putting up with more chaos and noise and maybe not reaching the end of the syllabus by June. Perhaps most disconcerting, it means a greater chance of questions arising that might expose gaps in a teacher's knowledge. In addition, many teachers find it difficult to allow students just the right measure of freedom without losing control. Unlike Bob Henschen's classroom, in another Westbury High class recently, an advanced group of students could be found working dutifully at an in-class assignment on poetry. But other students were wandering the room, talking about sports and compact discs. One strutted around, "accidentally" slamming into his peers while the teacher struggled to maintain discipline.

Asking a different question. The essays, projects and other "exhibitions" that Sizer urges as alternatives to traditional multiple-choice tests are especially tough on teachers, because it's trickier and more time-consuming to create assignments that take students below the surface of a subject. As Hope High School history teacher James Charleson puts it: "Under the old system, the question would be 'Who was the King of France in 800?' Today, it is 'How is Charle-

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Learning by two. Biology collaboration at East Harlem's Central Park East

The way things are supposed to work

It's ironic that Sizer's reforms have been most successful not at some wealthy suburban school but at Central Park East Secondary School in East Harlem. With 75 percent of its sophomores' reading scores above the New York City average, the 400-pupil junior-senior high school has been widely praised since opening in 1985.

The school works because it uses Sizer's principles. At CPE, traditional subjects are scrapped in favor of 2-hour courses called "humanities" and "math/science." And unlike traditional classes, which each September set out to cover a sprawling syllabus, these Sizer-style courses cover discrete, year-long themes like "justice."

Dave Feldman's ninth-and-10th-grade math/science class follows Sizer's dictum of student-as-worker. As students do their physics problems, not individually but helping each other in small groups, Feldman only occasionally takes to the blackboard. Most of the time, the kids do the work as Feldman hustles around his classroom both answering questions and asking them, the personification of Sizer's idea of teacher-as-coach.

While CPE administers city and state-sponsored multiple-choice tests, the school's own tests are Sizer-inspired "exhibitions." Last fall, CPE's ninth-and-10th-grade math/science classes were required to answer an "essential" question: "How do we move?" Students had to use the math and physics that they learned to de-

sign an amusement-park ride, which they then had to explain in calculations, diagrams and an essay on Newton's laws.

This kind of academic overhaul helps CPE students learn, but it also helps teachers teach. By following Sizer's scheduling, CPE gives teams of teachers large blocks of time every week to plan classes—an opportunity that the frenetic pace of typical high schools rarely allows. As a result, teachers at CPE control what's taught and how. But that power doesn't threaten administrators, because at CPE they all teach.

CPE also works hard at building ties between students and faculty. "You can talk freely to teachers here, and they listen," says ninth grader Damian Stanley. CPE's curriculum makes it one of the few coalition schools to meet Sizer's demands for a low student-teacher ratio. Of equal importance, teachers stay with the same group of students for two years at a time. Everyone at CPE is addressed by first name. To her students, CPE Principal Meier is "Debbie."

Yet, despite CPE's successes, Meier is locked in a struggle with New York State education authorities that has put the school's future at risk. Meier is battling new curriculum regulations that would force CPE to abandon its interdisciplinary classes and innovative exhibitions. If the regs stick, says Meier, she'll shut the school's doors.

magne important to your life?" It's thus not surprising that a 1988 evaluation of the coalition commissioned by Sizer found only "scattered" evidence of successful exhibitions.

For their part, students have grown comfortable with the roles they've been asked to play in traditional classes—listening silently at their desks to lectures and rehashing what they've taken in. As a result, the coalition's credo of student-as-worker has been a hard pill to swallow. "It's more work, more responsibility," says Alexis Alix, a senior at Hope Essential High School. More than two dozen students transferred out of Hope Essential into less demanding schools in 1988-89.

Unexpected costs. Because breaking old classroom habits has proved so difficult, a tremendous amount of time and money must be spent retraining teachers to achieve the radical reforms that Sizer advocates. As Principal Deborah Meier of Central Park East puts it, "It's not simply a matter of changing teachers' attitudes. We've got to change their behavior as well." The coalition's most successful schools have spent large amounts of grant money—in the case of Hope Essential High School, nearly \$200,000—on sabbaticals, travel, summer study and other initiatives that have helped teachers master Sizer's demanding methods. While Sizer spends the bulk of his \$1 million-plus annual budget training teachers in coalition schools, it's still not nearly enough, he believes.

Beyond the school doors, crazy-quilt regulations, wary unions and a host of other political barriers compound problems for reformers. The best coalition principals fight a guerrilla war against bureaucrats. Central Park East's Meier, for example, managed to bolster her staff by hiring Edmond Canova, a top-notch physicist and popular—but then-uncredited—teacher, through an ad the school ran in the newspaper. But she was able to do so only through the good graces of the United Federation of Teachers, New York City's powerful teachers' union. To UFT President Sandra Feldman, Central Park East's hiring of teachers outside of formal channels is "very radical" and tolerable only because the city is not, for the moment, in the throes of layoffs.

Reformers also run afoul of a raft of state regulations, including many introduced in recent years by reform-minded policymakers. Texas's teacher-evaluation system, in which state-trained regulators actually sit in on classes and rate the teachers, sounds like a sensible idea, but educators in coalition schools say that, in practice, the system stifles creativity. Being judged by measures such as "organizes material and students" and "manages student behavior" dis-

courages teachers from having the kind of raucous discussions that make a Sizer classroom great. Instead it rewards a very traditional lecture, argues McCullough's Westmoreland.

Sizer's Compromise. Once disdainful of politicians and their rhetoric, Sizer has come to recognize the value of creating a public agenda for school reform. He recently struck a bargain with governors in six states: He'll launch as many as 10 coalition schools in each state if they agree to put up funding and pledge to waive burdensome regulations and run other types of political interference. It's too early to gauge the value of such political bargaining, but he believes it's probably the only way his grass-roots, school-reform effort is going to survive.

Despite all the walls Sizer has hit,

timidating school, Littky now reports "this is not an angry place." And on a chilly October night, as students easily tease him about the forthcoming student-faculty basketball game, it is easy to appreciate his claim.

Yet Sizer's reform effort stands on a thousand fault lines. In New York, a regulatory change threatens to scuttle Central Park East's innovative curriculum. A new, disagreeable principal at Texas's Westbury High would be all it would take to suffocate Bob Henschen's dynamic classes.

For those who preach "bottom up" reform, like the systems being tried in Miami and Chicago, where councils of teachers, principals and parents have been granted control over schools, the Sizer experiment should serve as a cau-

tionary tale. Freeing schools by proclamation from bureaucratic shackles will not miraculously turn them around. Schools will, as Meier says, "do exactly what they've always done"—fail their students. It has taken enormous dedication and supervision to make Sizer schools work where they do.

Those who contend that reform can be imposed on schools, either through state laws or hostile takeovers, also have much to glean from Sizer's frustra-

tions. His experiences at Brighton and McCullough show that a resistant faculty can throw a wrench into the most well-meaning reform effort. What's needed, as Sizer has learned, is some combination of freedom at the local level and the kind of steady coaching provided by Sizer and his staff.

Both conservatives and liberals can learn from Sizer. Coalition principals like Meier have made their schools great not with the traditional bromide of more authority but by making schools more intimate. Sizer also has shown that there's nothing cruel or elitist about demanding the best from disadvantaged students.

The teachers and administrators, students and parents who have taken Sizer into their midst now know full well that school reform is not some simple policy prescription. A Texas school must reconcile its love of sports and its belief in academics, a Rhode Island teacher her settled routines and her commitment to real learning. No one gets off easy. ■

by Thomas Toch and Matthew Cooper



Principles in action. Sizer at Hope Essential High School

and despite the less-than-satisfying accomplishments of his reform coalition over all, there is clear evidence that his ideas do get results. In addition to Central Park East's successes, 90 percent of Hope Essential High School's class of 1989, its first graduating class, went on to higher education; only 6 percent of the seniors in Hope's traditional high school—an academically comparable group at its start—graduated. In Baltimore, Walbrook Essential School's dropout rate is under 2 percent, compared with 23 percent for Walbrook High School as a whole. Most instructively, at Thayer High School in Winchester, N.H., where the entire student body is in the coalition program, Principal Dennis Littky has boosted the college-going rate from 10 percent to 55 percent.

Beyond the numbers, there has been a transformation in the souls of many Sizer schools. At Fairdale High in Kentucky, social-studies teacher Jim Streible, a 30-year veteran, says that Sizer "has raised him from the dead." At Thayer, once known as a rough and in-

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THE MEANING OF STAFF DEVELOPMENT IN THE 21ST CENTURY

Teachers, and their continued development, should be a central factor in any consideration of school improvement or restructuring. The articles in this section deal directly with both the needs for teacher improvement and the possibilities and options for staff development. They reflect a growing awareness of the importance of building continuing education for teachers into any school plan.

Linda Darling-Hammond (1988), in the first article, sets the context for staff development, particularly as it relates to inner city schools. She looks at the issues that have underscored several new federal policy initiatives. First on her list is the problem of teacher shortages and unequal distribution of qualified teachers--central city schools where poor and minority children are concentrated have the most difficulty recruiting teachers and often have to select less well-prepared teachers. Next, she discusses the lack of priority historically placed on teacher preparation. She warns that "ambivalence about whether teachers should be well prepared to teach is a luxury we can no longer afford" (p. 39). One of the effects of this lack of priority on teacher preparation is that there is also little production and codification of knowledge about teacher preparation. She argues that federal programs are needed so that an expanded knowledge base can be developed. She suggests that, to help improve instruction and develop more knowledge, the

federal government should also sponsor "learner-centered" professional development schools.

Lee S. Shulman (1987) examines in considerable depth some of the key knowledge that is needed for expert teaching. He makes a strong case that both pedagogical and content knowledge are essential to expert teaching. Content knowledge alone is not enough, nor is the division of pedagogy and content that now exists in most teacher education programs. His examination of the intricacies of teaching have real implications for staff development; his focus on case studies is also instructive of the kinds of data that can inform those planning such programs. Shulman, like Darling-Hammond, argues that much more needs to be learned about expert teaching and that we have depended almost exclusively on empirical studies to provide the data on characteristics of good instruction.

Dennis Sparks and Susan Loucks-Horsley (1989) review five staff development models that have become widely used in the last decade to help improve teachers' knowledge, skills and attitudes. They describe each of the models, provide the underlying assumptions and theoretical and research underpinnings, and then provide some examples and discussion of each alternative. Just as there is yet too little known about the professional preparation of teachers, so, too, we still have too little knowledge about staff development, according to Sparks and Loucks-Horsley. Questions and issues still needing our attention are addressed in the concluding section of his article. You may

want to compare your own experiences and understanding with these conclusions and concerns.

William T. Pink (1989) synthesizes data from four case studies of urban school improvement initiatives and identifies common barriers that prevent successful program conceptualization and implementation. He details, for example, how factors such as an inadequate theory about school change, a lack of sustained central office support, underfunding, central office management of interventions better managed at the school site level, and attempting to effect school change without altering existing organizational practices lead to the ineffectual implementation of reform initiatives. The articles suggests areas that require attention when planning for and mounting school reform activities.

These four readings raise several questions related to restructuring. It is certainly clear that the authors want more research both on teaching and on the process of continuing teacher education through well-orchestrated staff development.

- . How can that research best be conducted?
- . Have we used the rich resources of our expert teachers in analyzing what is required of good teachers?
- . How can we do this?
- . With the growing interest in changing our schools in significant ways how will teachers' roles and responsibilities change?
- . What influence will such changes have on teaching and on staff development?

- . How best can we organize and support a model of staff development in our school and district that enables rather than obstructs restructuring?
- . What affect are changes that involve more parent and community involvement in schools going to have on teachers?

EDUCATION REFORM AND FEDERAL POLICY: SUPPORTING PERESTROIKA
AND PROFESSIONALISM IN THE PUBLIC SCHOOLS

by
Linda Darling-Hammond
July 1988

EXCERPTED COPY

Paper prepared for the Educational Policy Seminar, Aspen Institute

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A prerequisite to the pursuit of these strategies, and to the achievement of educational reform goals, is finding a solution to the related problems of mounting teacher shortages and the maldistribution of qualified teachers. A convincing case can be made for a serious and sustained federal role in solving these problems on the grounds of equity and national need as well as on the grounds of precedent. The precedents -- especially in the field of medical education -- are directly analogous to the current needs and problems in teaching and pose a compelling example of successful use of federal leverage.

The federal government has helped to build a medical care system unequalled elsewhere in the world through a variety of health manpower programs over the last 25 years: capitation grants to medical schools and other direct supports for building and improving medical education programs, forgivable loans and scholarships to medical students, special assistance to teaching hospitals and clinics in underserved areas, and incentives to encourage more equitable distribution of physicians. Support for health-related research and dissemination (far exceeding the level of support for education research) has helped to sustain this system by producing new knowledge and ensuring its transmission. Just as the high quality of American medical training and research are directly related to the high quality of our nation's health care system, so improvements in teacher education and educational research could become foundations for school improvement.

In what follows, I will discuss a number of new federal policy directions and the rationales for their adoption. These initiatives can be grouped in four categories:

1. The production and equitable distribution of qualified teachers;
2. The improvement of teacher education and clinical training;
3. The production and codification of professional knowledge for teaching;

4. The encouragement of learner-centered school settings, directly, through R&D activities and indirectly, by new approaches to the funding and management of federal programs.

THE SUPPLY AND DISTRIBUTION OF TEACHERS

Throughout the twentieth century, teacher shortages have been common and they have provided an impetus for upgrading salaries and standards within the profession. Shortages following World War I and World War II, and again in the 1960s, propelled substantial real increases in teacher salaries accompanied by increases in the educational requirements for teaching. As Sedlak and Schlossman (1986, p. 39) note:

Contrary to what many modern-day educators tend to assume, teacher shortages have been commonplace throughout the twentieth century. Nonetheless, it has proved possible, time and again, to raise certification standards during periods of protracted shortage. Not only has the raising of standards not exacerbated teacher shortages, it may even -- at least where accompanied by significant increases in teachers salaries -- have helped to alleviate them (and, at the same time, enhanced popular respect for teaching as a profession).

Their research demonstrated that teacher shortages generally followed periods of real income decline for teachers and that in most instances the shortages produced both salary gains and heightened standards for teaching.

The 1980s mirror past experiences with teacher shortages and changes in compensation and certification. Following the wage declines of the 1970s, which, along with widely-publicized surpluses, dramatically decreased the supply of teachers in training, emerging teacher shortages led to a 40 percent increase in nominal salaries between 1981 and 1986, while certification standards were "raised" by virtue of required licensure tests in most states (Darling-Hammond and Berry, 1988). These salary hikes, though helpful, have just returned average teacher salaries to the level they had reached in 1972, following the shortages of the 1960s. Adjusted for the increases in teacher experience and education levels since then, average salaries in 1986 still lagged behind those in 1972 by about 15 percent (Darling-Hammond and Berry, 1988).

Shortages and Loopholes

Even as certification standards have ostensibly been raised, however, current shortages have been addressed by certification loopholes, including increased use of emergency certificates to fill vacancies (46 states allow this practice) and the creation of "alternative routes" to certification which lessen the preparation requirements for teaching in 23 states. For just the small sample of states who keep records on emergency and temporary licenses, over 30,000 were issued in 1986 alone (Feistritzer, 1986). While recent attention to teaching has stimulated an increase in the number of college freshmen reporting interest in education as a major or a career (Astin et al., 1987), their numbers would have to nearly double to satisfy the demand for new teachers in coming years.

The dilemma, then, is that while teacher shortages have created a political climate within which standards and salaries may be raised, they also create conditions which work against the continuation of these initiatives. The effect of having standards, however high, with large loopholes available to satisfy demand pressures, is that salaries will always remain somewhat depressed. In the past, although teacher salaries have always increased in times of short supply, they have never reached comparability with those of other professions requiring similar training, and they have tended to slip again when the supply crisis was "solved." If no substantial improvement occurs in the attractions to teaching, it will be difficult to improve overall teacher quality, since the pool of potential candidates who can meet the standards will not be sufficiently enlarged. In circular fashion, the failure to attract sufficient numbers of well-qualified teachers will lessen teachers' claims for professional responsibility and autonomy and will increase the press for regulation of teaching, thus further decreasing the attractions to teaching for professionally-oriented candidates.

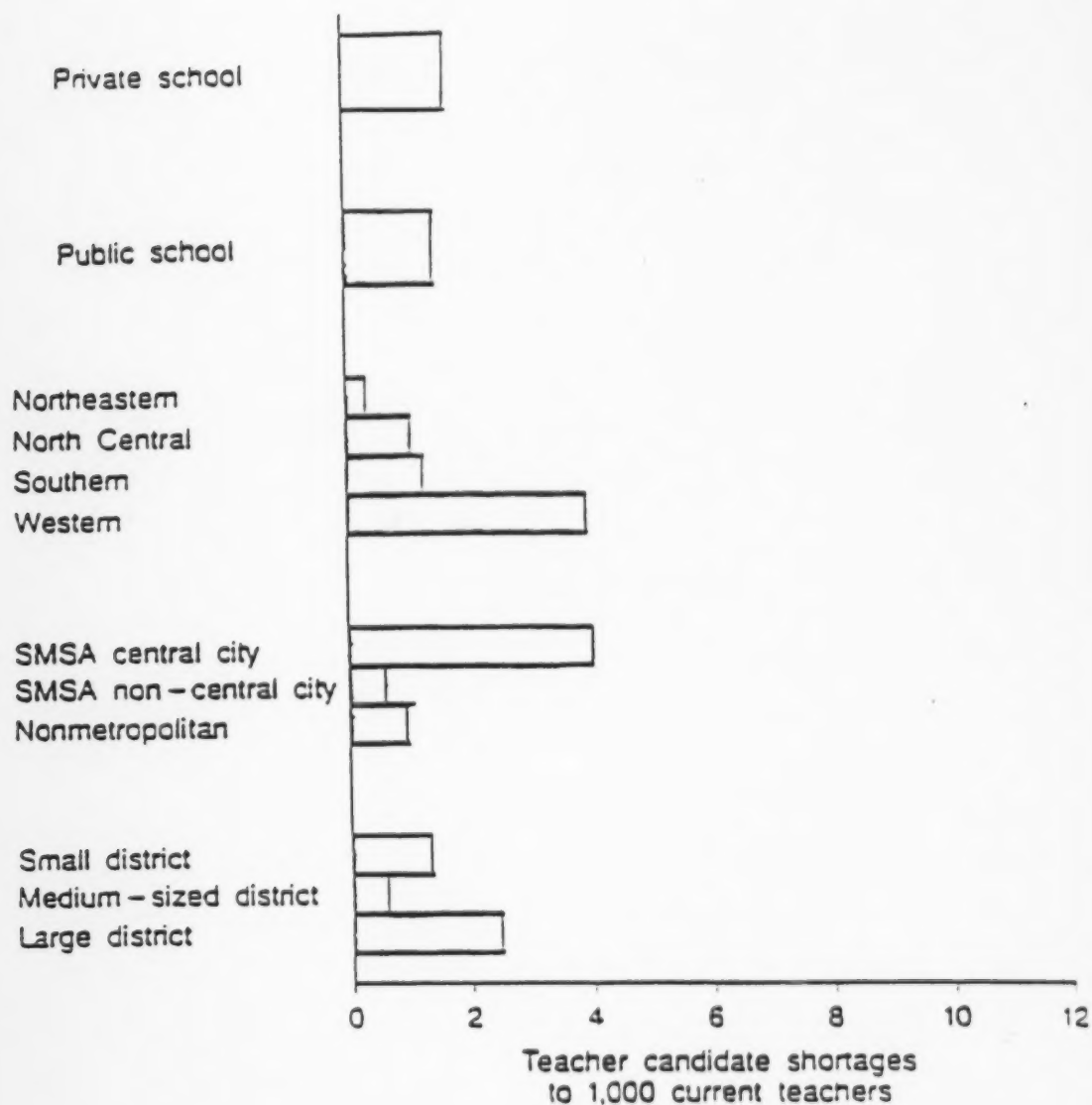
It is interesting to note that this process of standard-raising and nearly simultaneous undermining of those standards has occurred over the last century in

other occupations, such as law and medicine, that sought to become professions. In those cases, as in teaching currently, the loopholes were created by state governments, who established statutory exemptions to certification requirements. In some cases, the states were encouraged by college faculties or employers, who had greater incentives to ensure an adequate supply of students or practitioners than to ensure the quality of that supply (see e.g., Starr, 1982). It was not until members of these occupations organized themselves to promulgate and enforce their own standards through professionally-controlled licensure and examination boards that standards could be used as a determinant of permission to practice. Teaching now is alone in the granting of substandard licenses. The American Association of Colleges for Teacher Education Task Force on Teacher Certification has been unable to discover any other state-licensed occupation for which "emergency certification" exists (Bacharach, 1985). And most of the untrained recipients of such certificates are hired to teach in disadvantaged schools where recruitment is most difficult (Darling-Hammond, in press). Thus, the children in these schools bear the brunt of the teacher supply problem.

Shortages and Equity

Teacher shortages are most acute and underqualified entrants to teaching are most numerous in central city schools where poor and minority children are increasingly concentrated.

- o In 1983, the most recent year for which national information is available, shortages of teachers -- as measured by unfilled vacancies -- were three times greater in central cities than in rural areas or suburbs, and much greater in large school districts (which are most often urban) than in small districts (NCES, 1985). (See Figure 3.)



While nationwide, public school districts reported fewer than 2 shortages for every 1,000 current teachers in 1983-84, this ratio varied by location and type of school district. The higher-than-average shortages in the West and in central cities suggest a problem confined to specific localities and not national in scope.

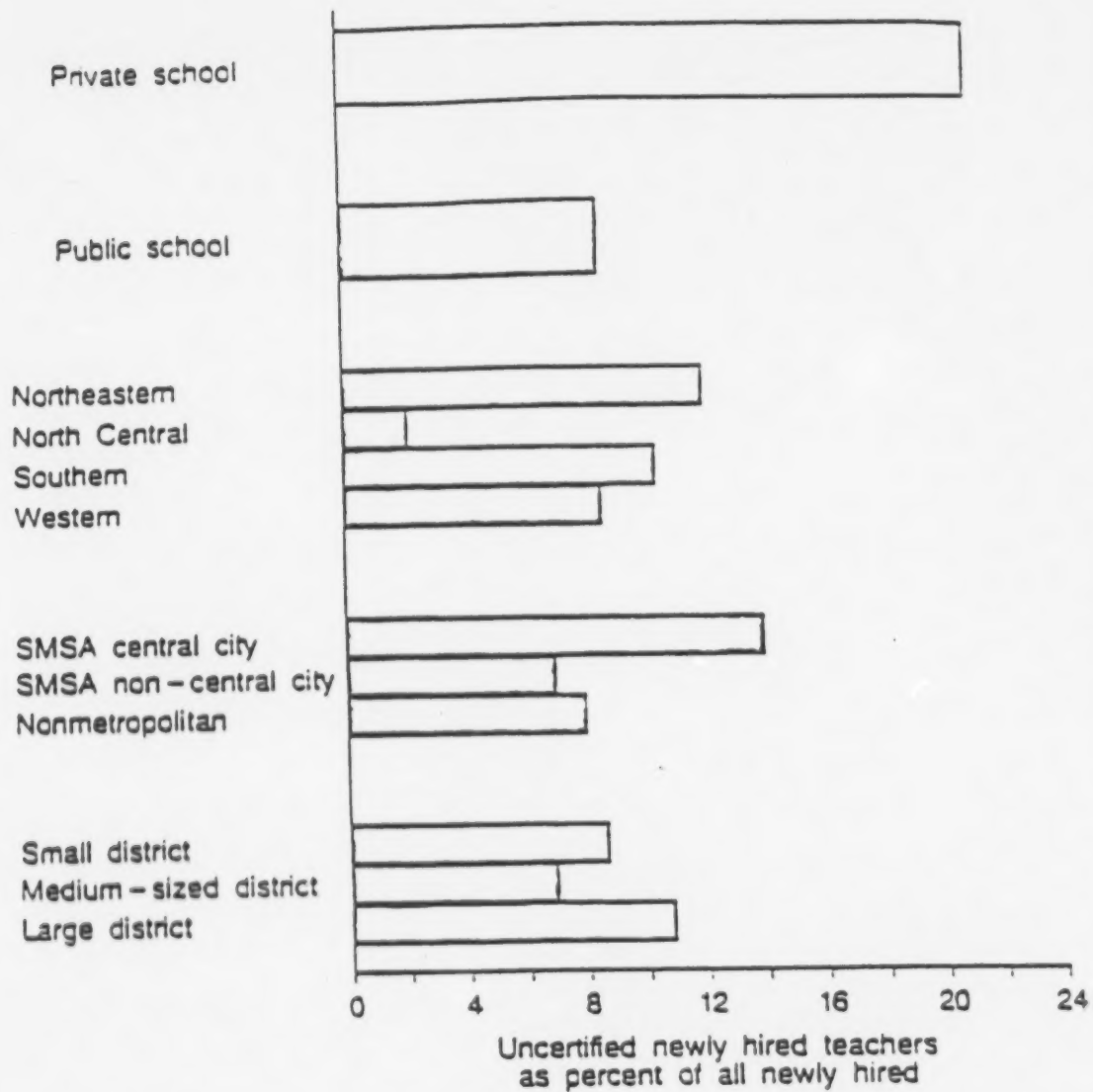
Fig. 3 -- Teacher Candidate Shortages

SOURCE: National Center for Education Statistics, The Condition of Education, 1985. Washington, D.C.: National Center for Education Statistics, 1985.

- o More than 14 percent of all newly hired teachers in central city school districts in 1983 were uncertified in their principal field of assignment, nearly twice the proportion experienced by other types of districts. (See Figure 4).
- o The most severe shortages of teachers occurred in such fields as bilingual education and special education, fields that are in especially great demand in central cities; these fields are also among those with the highest proportions of uncertified teachers.
- o A survey of high school teachers in 1984 found that the schools where uncertified teachers were located were disproportionately central city schools with higher than average percentages of disadvantaged and minority students (Pascal, 1987, p. 24).
- o In 1985, 5,000 teachers were hired on emergency certificates in New York, Los Angeles, and Houston alone. Many of these districts' vacancies were not filled when schools opened that fall (Darling-Hammond, 1987). Each year since then, large urban districts have encountered similar problems recruiting teachers.

Teacher shortages subvert the quality of education in a number of ways. They make it hard for districts to be selective in the quality of teachers they hire, and they often result in the hiring of teachers who have not completed (or sometimes even begun) their pedagogical training. In addition, when faced with shortages, districts must often hire short- and long-term substitutes, assign teachers outside their fields of qualification, expand class sizes, or cancel course offerings. No matter what strategies are adopted, the quality of instruction suffers.

Shortages of teachers are a serious problem wherever they occur; so are inadequately prepared teachers. But as we look at the types of students who are most likely to live in districts where shortages and poor preparation are most common, we see that inequality of opportunity is, in general, not randomly distributed. It is, in general, the lot of the children who attend inner-city schools, and most of those children are Black or Hispanic and poor.



Approximately 9 percent of newly hired teachers in the public schools in 1983-84 were not certified to teach in their principal field of assignment. School districts in the central cities reported higher-than-average cases of uncertified new hires than school districts in other locations.

Fig. 4 -- Newly Hired Teachers Uncertified in Principal Assignment Field

SOURCE: National Center for Education Statistics, The Condition of Education, 1985. Washington, D.C.: National Center for Education Statistics, 1985.

The elimination of this particular form of inequality can come only by a large and sustained boost in the supply of well-trained teachers, coupled with incentives for many of these teachers to train in shortage fields and to locate in shortage areas. Though federal initiatives to boost the supply of teachers in fields like mathematics and science are now being considered, no analog to the distributional incentives of the 1960s' National Defense and Education Act for teachers has yet been revived to address this acute problem. The NDEA provided forgivable loans to college students who entered teaching, with an added incentive for those who entered teaching in urban districts. Similarly, the National Medical Manpower Act and the Health Professions Educational Assistance Act for physicians have, since the 1960s, provided forgivable loans to medical students who practice in underserved rural and central-city locations.

Such initiatives must be launched soon if the severe teacher shortfall anticipated over the coming years is to be even partially averted. Special efforts will be needed to avert the additional tragedy of a teaching force which no longer represents the racial and ethnic diversity of society. Recent substantial drops in the number of minority entrants to teaching could bring the proportion of minority teachers down from over 10 percent to less than half that number by the end of the next decade.

Current shortages of minority candidates in teaching are partly the result of teacher tests, which influence entrance at the point of certification, but mainly the result of the defections of academically able minority students to other careers and professions. Enrollment of minority students in teacher education programs had plummeted sharply prior to 1981, when most teacher tests were just beginning to be enacted, and have continued to drop since. Education has been replaced as a field of choice by other careers, many of which require graduate education and licensure testing. As proportions of women and minority college students majoring in education decreased by over half during the 1970s, the proportions of both groups

majoring in business, engineering, and the sciences increased severalfold (Darling-Hammond, 1984; Darling-Hammond, Pittman, and Ottinger, forthcoming). The sharp changes in social opportunities and career preferences for minority students over the past 20 years are reflected in the astounding fact that in 1985, only 8,800 minority students who had received bachelor's degrees in the previous year entered teaching, while over 24,000 were enrolled in law schools or medical schools and over 30,000 were enrolled in all first professional degree programs (Darling-Hammond, Pittman, and Ottinger, forthcoming).

Ultimately, improvements in the attractiveness of teaching are key to resolving the problem of shortages for both majority and minority candidates alike. In contrast to past eras of teacher shortage, this one is occurring at a time when women and minority college students have far greater opportunities available to them in other fields than ever before in the past, and they are taking advantage of them. Requiring more rigorous teacher preparation and serious licensure examinations will not, in and of itself, prevent minority students from entering teaching. Such requirements have not dissuaded them from entering other professional careers. However, teaching must be competitive with these other opportunities if it is to reclaim a significant portion of what was once a captive labor force.

Short of a total overhaul of the teaching occupation and the structure of schooling, there are a number of strategies that can be pursued to increase the attractions to teacher preparation. First, and most obvious, lowering the financial and opportunity costs of acquiring teacher preparation will sharply improve recruitment, particularly for minority students. Offering scholarships and forgivable loans to prospective teachers ought to be at the top of the federal agenda throughout the next decade.

There are also ways in which teacher preparation can be made more accessible to candidates who do not choose to enroll in an education major in their junior year

of college. Graduate level teacher education programs can succeed in attracting an entirely different pool of recruits -- those who were unable or unwilling to commit to teaching at a very early point in their academic careers during undergraduate school and those who are interested in changing careers but are unwilling to return to undergraduate school to do so. Without diluting requirements for teacher preparation, schools of education can lower the transaction costs for attending by creating more time-efficient and flexibly scheduled programs than most undergraduate programs typically allow. Indeed, recently created programs designed to attract (and fully certify) nontraditional recruits to mathematics and science teaching have succeeded in maintaining standards for preparation while attracting recent bachelor's degree recipients and mid-career candidates to graduate level programs targeted at their career needs and schedules. In many cases, these programs also attract much larger numbers of minority candidates than traditional undergraduate teacher preparation programs (Carey, Mittman, and Darling-Hammond, 1988). Federal support for new forms of teacher preparation like these should also be considered.

TEACHER PREPARATION

American school policy has often started from the assumption that teachers are conduits for policy or curricula rather than active agents in the production of learning. Consequently, many reform initiatives have emphasized improving schools by changing curricula, programs, tests, textbooks, and management processes rather than by improving the knowledge and capacity of teachers. Indeed, American policymakers seem to doubt whether there is anything that a teacher brings to the classroom other than the state's or school district's mandated materials, procedures, and regulations. They question whether teacher preparation is necessary and seem to believe that novice teachers are as safe and effective as experienced teachers. These beliefs support the myth that allows teaching

expertise to be unequally distributed -- the myth that all teachers and classrooms are equal.

Over the last twenty years, educational research has exploded the myths that any teaching is as effective as any other and that unequally trained and experienced teachers are equally advantageous to students. In a study documenting the positive effects of teaching experience on teaching effectiveness, Murnane and Phillips (1981, pp. 453-454) note:

The question of whether teachers become more productive as they gain teaching experience has been of interest to policymakers for many years. One reason is that schools serving children from low-income families have typically been staffed with less experienced teachers than schools serving middle-class children. This has led to court tests of whether the uneven distribution of teaching experience constitutes discrimination against low-income children.

When the allocation of teachers who are certified or uncertified, prepared or unprepared, experienced or inexperienced is unequal, so is the opportunity for students to learn. The differences in style and content are very real, not an abstract proposition. Having confirmed that teacher experience does make a difference, researchers are now identifying what it is that expert veterans do in the classroom that distinguishes their teaching from that of novices (see e.g., Berliner, 1986; Shulman, 1987). Much of this research also demonstrates the importance of teacher education for the acquisition of knowledge and skills that, when used in the classroom, improve the caliber of instruction and the success of students learning (see e.g., Berliner, 1984).

A major goal of professionalism is ensuring that all individuals permitted to practice are adequately prepared. So long as anyone who is not fully prepared is admitted to an occupation where autonomous practice can jeopardize the safety of clients, the public's trust is violated. So long as no floor is enforced on the level of knowledge needed to teach, a professional culture in schools cannot long be maintained, for some practitioners will be granted control and autonomy who are not

prepared to exercise it responsibly.

Teacher Education. Professionalism starts from the proposition that knowledge must inform practice, yet teacher education is often denounced and even avoided on the grounds that either it does not convey the knowledge necessary for real teaching (some argue this must be acquired on the job) or that there is no knowledge base for teaching anyway. However, much is known about how to teach effectively, and where it has not yet been fully incorporated into current teacher education programs, efforts must be made to strengthen rather than to eliminate these programs. This will in many cases require drawing on departments within and outside schools of education that are not currently engaged in training teachers, and on knowledge in areas like cognition, psychology, and human biology that is basic to teaching but not yet taught to prospective teachers. Such efforts can be encouraged by the support of demonstration or model programs, by grants for specific improvements or for experimentation, and by research on the effectiveness of teacher education.

We have never, in the United States, supported teacher preparation very much or very well. In most universities, schools of education get the fewest resources. Even during those periods of intense interest in improving education that seem to occur about once a generation and in which we find ourselves at the moment, neither the federal government nor most states nor most school systems seem much inclined to spend much money or attention on preparing teachers well. As Berliner (1984, p. 96) observes:

It is time for creative thinking on how to revitalize teacher preparation programs. It is also time for budgetary allocations for such programs. Currently, we do not have much of either. At my own institution, the University of Arizona, we have found that it costs the state about \$15,000 to educate a liberal arts undergraduate in, say, comparative literature, history, or psychology. To educate an individual for the vitally important profession of teaching, the state pays \$2,000 less. . . . I am afraid that Arizona, like the 49 other states engaged in teacher preparation, gets precisely what it pays for.

One reason for this lack of support is a deeply felt ambivalence. Are there things to know about teaching that make teachers more effective? If so, teachers ought to learn those things. Or is teaching something that anyone can do, without any special preparation? If so, anything that purports to be preparation is certainly not worth supporting. Clearly, the tension between these two points of view, unresolved for the past 200 years, continues today. A profession is formed when members of an occupation agree that they have a knowledge base, that what they know relates directly to effective practice, that being prepared is essential to being a responsible practitioner, and that unprepared people will not be permitted to practice. In some states, discussions of the importance of professionalizing teaching have led to new requirements for prospective teachers; in others, though, states have reacted to potential shortages of teachers by setting up alternate routes to certification that bypass standard preparation by offering six-week soup-to-nuts courses in how to teach.

Moreover, the current Administration has reinforced conceptions of teaching as requiring little knowledge by actively endorsing these alternative certification programs as a good way to avoid education schools. Rather than seeking to strengthen programs of teacher preparation, the federal government has endorsed and even sought to encourage state practices that bypass them and that exempt teachers from acquiring a basic knowledge base for their work. It has also -- by approving of these programs as a means of "solving" shortages and by failing to create other incentives to deal with shortages -- tacitly endorsed the disproportionate allocation of these untrained teachers to inner city schools and to poor and minority children.

As far as those students are concerned, ambivalence about whether teachers should be well prepared to teach is a luxury we can no longer afford. Improving education for poor and minority students clearly requires policies that improve the preparation of teachers. The institutions that prepare teachers need the money it

will take to produce knowledge about teaching and to create programs that effectively transmit that knowledge to the people who want to teach.

As noted earlier, the federal government has used both these policy approaches to build medical education. The government has supported the efforts of medical schools to develop the capacity to produce and transmit knowledge. It has provided support for building particular programs in high-need areas, for strengthening existing programs, and for improving teaching hospitals where clinical training is pursued. It has provided scholarships and loans for medical students. Now that the United States has perhaps the finest system of medical education in the world, the great debates of 80 or so years ago have lost all but historical interest. But before medicine coalesced into a profession, back when people thought the doctor-to-be might as well learn what he could just by following a doctor around, the debate raged. Was medical education necessary and desirable? Or should medical training be dispensed with in favor of the follow-me-around-in-the-buggy approach? The decision to formalize and strengthen medical education has brought tremendous advances in knowledge. But perhaps the greatest benefit of setting standards of competence in medicine has been that even the people least well served by doctors are now much better protected from quacks and charlatans and incompetents.

Criticisms of federal strategies in the medical arena should also be taken into account. For example, many believe that the use of no-strings-attached capitation grants for boosting enrollments in medical schools missed a golden opportunity for stimulating curricular improvements. Although other federal grants supported innovations in medical training programs, the weight of the subsidies rewarded head count rather than improved quality. Especially given the poor reputation of teacher preparation programs, a better balance of funding for support of improvements ought to be sought. The medical subsidies analogy should not be adopted wholesale but used selectively as experience indicates it has been most

successful and productive.

To general considerations of improving the preparation of teachers we must add at least one consideration that relates directly, though not exclusively, to improving education for minority students. For many reasons, increasing the supply of well prepared teachers who are themselves members of minority groups is vital. Teaching ought to reflect our population, as should all parts of our society, yet as the proportion of minority students in public schools is increasing, the proportion of minority teachers -- especially black teachers -- is declining rapidly. Yet the schools of education in historically black colleges and universities, from which most black teachers have graduated, are, for various reasons, facing great difficulties. Never well financed for the most part, these institutions now face great financial difficulties. Their education programs are in even greater jeopardy in the many southern states that tie pass rates on teacher certification tests to approval of teacher education programs.

A distinction needs to be drawn here that is often ignored. The distinction is that supporting the institutions that prepare teachers and supplying particular support for the ones that characteristically train most minority teachers is one policy, and testing teachers is another. For all the talk about the central importance of good teaching to good education, the first policy remains essentially untried. Supporting teacher education has simply not been a strategy that policymakers have yet been willing to adopt.

Federal support for historically black colleges, and for minority student scholarships generally, will be needed to open up again the pipeline to teaching (and other professions) that has narrowed in recent years as minority students' college-going rates have declined along with declines in federal student aid opportunities. Enlarging the pipeline of college-educated workers is critical to solving the teacher supply problem, because competition among occupations is expected to be fierce throughout the next decade as the number of entering workers

declines and the number of jobs increases.

Similarly, stemming the flow of teachers -- especially new entrants -- out of teaching will be more difficult as opportunities in other fields will be plentiful. Yet reducing attrition will be even more imperative to keep pace with demand and to avoid squandering investments in teacher training. For both practical and professional reasons -- to increase teacher effectiveness and reduce turnover -- teacher preparation will need to extend through initial clinical training and induction.

Teacher Induction. Consistent with a professional view of teaching knowledge and practice, serious and intensive induction of new teachers is necessary before they are allowed or expected to teach without supervision. This major departure from the current sink-or-swim approach to beginning teaching is crucial for two equally important reasons: (1) because teaching knowledge is complex and requires judgment in its application, it cannot be fully acquired in a classroom setting; and (2) because a teaching profession is first and foremost committed to the welfare of students, inexperienced practitioners cannot be allowed to learn on the job without guidance. Furthermore, supportive and sustained induction is necessary to stem high attrition rates of new teachers and to provide equity to students.

The current lack of support experienced by beginning teachers is exacerbated by typical school district placement policies. As McLaughlin et al. (1986) have noted:

New teachers are often given those students or courses with which experienced teachers do not wish to deal. Instead of giving beginning teachers a nurturing environment in which to grow, we throw them into a war zone where both the demands and the mortality rate are excessively high. It is really not surprising that one-third of teachers leave the profession within their first five years of teaching.

The placement of beginning teachers in the most difficult assignments is encouraged by district internal transfer policies which allow successful senior

teachers to move to schools of their choice. Schools with high turnover rates -- which also tend to be schools serving the most disadvantaged students in the most challenging teaching conditions -- hire new teachers in order to fill their vacancies. When a vacancy arises in a desirable school, senior teachers tend to transfer away from the more difficult schools. Consequently, these schools are more likely to be staffed with disproportionate numbers of new and inexperienced teachers and are less likely to maintain an adequate cadre of expert, experienced teachers who can assist these novices. Thus, beginning teachers are presented with the most difficult educational problems and with little opportunity for assistance. As a result, many experience frustration and leave the profession. Not incidentally, the students of these neophytes -- those who most need expert teaching -- are continually subjected to instruction by persons who are just learning -- or, perhaps, not learning -- how to teach (Wise, Darling-Hammond, and Berry, 1987).

Ultimately, the creation of professional development schools, analogous to teaching hospitals, in which expert teachers join with university faculty to provide a structured internship experience for new teachers would be the most effective means of inducting new teachers. Such schools would be exemplars of good practice, would produce and transmit knowledge of teaching to new entrants, and would provide the highest quality education to those students who in many cases now receive some of the lowest quality schooling. In much the same way that federal support for medical internships and residencies -- and for the establishment and improvement of teaching hospitals themselves -- has helped to improve the caliber of clinical practice, so the launching of such training grounds for teachers can improve teacher skill, retention, and teaching equity.

It's true that an all-out effort to improve the preparation of teachers would cost far more than the current strategy of simply testing teachers. But discussions

of cost would more usefully be discussions of cost-effectiveness. We tend, in education, to see each suggestion for reform as discrete, as a program to add on here, a requirement to add on there, an allocation to add to the already-large sums of money being spent. But if we were instead to examine strategies for reform, we would see that the money spent preparing teachers adequately is money that would not need to be spent thereafter to patch up the problems inadequate training creates.

FEDERAL FUNDING FOR EDUCATION RESEARCH

Improvements in teaching must rely on an expanding knowledge base. This is an area where the federal role, though acknowledged as legitimate, is pitiful indeed. Compared to the five billion dollars a year spent on health-related research, the total federal education research budget is a drop in the bucket. Federal funding for education research from the U.S. Department of Education (and its predecessor agencies at HEW) has declined in nominal dollars from about \$140 million in 1978 to less than \$70 million in 1986. In constant dollars, this is close to a 75 percent drop. Within the National Science Foundation only another \$4 million (less than 1 percent of their budget) goes to research on science and engineering education. Adding various funds from other sources, the total federal funding for education research reaches about \$100 million. Furthermore, very little education research is conducted at the state or local level. For a \$100 billion enterprise, this sum represents 1/20 of 1 percent, obviously a very small investment that grows smaller by the year. By comparison, the \$45 billion spent on national defense research represents closer to 15 percent of the overall national defense budget.

Though education research is still in its infancy, it has already produced knowledge about teaching and school management that has great power. But lines of funded research work stop and start with the winds of politics and changing administrations. Sustained work on key problems of practice is not supported at the levels and with the certainty required to build a solid base of professional

knowledge.

A key federal role in school reform and the professionalization of teaching is the creation and sustenance of a serious, stable, politically-independent research enterprise. A meaningful goal for funding over the next decade would begin to match the investments made in other knowledge-based fields such as health at a level of 1 or 2 percent of total investments. By the year 2000, education research funding should be at a level of at least \$1 billion. Then we might be able to attend seriously to both knowledge production and its diffusion to schools and teachers.

SUPPORTING LEARNER-CENTERED SCHOOLS

As suggested by the preceding sections, one way that the federal government can promote more effective school organization is through sponsorship of research and dissemination on such schools, and the particular support of professional development schools as exemplars of good practice through which all new practitioners are trained and socialized. The next generation of teachers and administrators would thus carry with them a shared commitment to and model for professional practice.

There are other important strategies, though, implicit and explicit in the design of federal programs. These have to do with decisions concerning

- o What aspects of federal program delivery are to be regulated,
- o How regulations are designed and enforced,
- o What accountability mechanisms are chosen for monitoring and redress, and
- o Who, at the local level, is involved in designing, implementing, and evaluating programs.

Federal programs create incentives and constituencies that shape many schools more profoundly than the dollars involved would alone predict. Title I, for example, through its comparability requirements helped to equalize intradistrict spending patterns. Its Parent Advisory Councils legitimized the notion of parent

involvement in school decisionmaking, and in some places, sowed the seeds for new, more participatory governance structures. These regulations have probably had salutary effects on school quality and equality.

Yet other federal regulations have encouraged the bureaucratization and compartmentalization of schools by categorizing children by their separate "needs" funded by separate programs through separate offices and using separate funding channels. "Pull-outs" created by auditing, monitoring, and reporting requirements have fragmented the time and efforts of school people and children and have deflected resources (or prevented the creative use and merger of resources) for more effective instruction. A re-thinking of the forms of federal funding and the nature of regulation is in order.

This paper is not the place to discuss the revamping of the entire federal categorical program structure, but a few points are in order. First, as the intended recipients of major federal program services are increasingly overlapping in population and concentrated in their geographic location, "whole-child" and "whole-school" approaches to the funding of health and nutrition, compensatory education, bilingual education, and special education services would encourage more child-centered approaches to schooling and teaching. The schoolwide project notion advanced (but still not much pursued) for Title I/Chapter 1 fits with the school reformers' recognition of the school itself as the key unit of change and improvement.

Second, regulation can seek to ensure the proper and equitable distribution of resources without overstepping its capabilities for doing good and thus beginning to create counterproductive side effects. A principled method for evaluating the likelihood that regulation will achieve its intended effects without producing unduly harmful side-effects can be developed.

Tom Green describes the delicate balance between policies that seek to accomplish that which is consonant with their intrinsic limits and those that seek

to do too much:

Public policy is a crude instrument for securing social ideals. We would not use a drop-forged pound of butter or an axe to perform heart surgery. Public policy is the drop-forged or the axe of social change. It is not the knife or scalpel. That is to say, public policy deals with gross values. It deals with the common good, not with my good in particular or my neighbor's or the good of us both together. Policy deals always with what is good in general, on the whole, and for the most part It is true that government can't do everything we desire, and therefore, it is equally true that public policy is not the fit instrument to secure all our desires. For example, even if we knew what is needed to make every school excellent and every teacher a paradigm of wisdom in the care of children, it would remain doubtful that we could express this knowledge in public policy and thus secure the good we seek Minimizing evil is a proper aim of public policy. Maximizing good is probably not. The latter assumes that we may shape the axe into a scalpel (Green, 1983, pp. 322-323).

It is because public policy cannot act as the arbiter of all decisions that ensuring professional competence to make good decisions is so important.

It is useful to divide responsibilities between those that must be centrally administered and those that, by their nature, cannot be effectively administered in a hierarchal fashion. Wise (1979) offers a useful distinction between *equity* and *productivity* concerns. The former generally must be resolved by higher units of governance, since

Inequalities in the allocation of resources, opportunities, and programs are generally problems which arise out of the conflicting interests of majorities and minorities and of the powerful and the powerless. Because local institutions are apparently the captives of majoritarian politics, they intentionally and unintentionally discriminate. Consequently, we must rely upon the policymaking system to solve problems of inequity in the operating educational system (p. 206).

As Wise notes, though, "productivity questions are intrinsically more difficult than equity questions because they arise not out of a political impasse but from a fundamental lack of knowledge about how to teach" (p. 53). The shortcomings of scientific knowledge are not due to a general absence of knowledge about teaching but to the fact that the appropriate use of teaching knowledge is

highly individualized, while policies are necessarily uniform and standardized. Thus, policy decisions about methods of teaching and schooling processes cannot ever meet the demands of varying school and student circumstances.

Problems of low productivity cannot . . . be solved by policy intervention. No science or technology of education can form a firm basis for policy intended to improve productivity. . . . Consequently, efforts to improve educational productivity can and should continue at the institutional level (Wise, 1979, pp. 206-207).

Governmental responsibilities effectively discharged through regulation include allocating resources equitably among schools, setting standards of equity for students and employees, setting standards for competence among the professional staff, and defining in broad terms the goals which the school system should pursue. Federal policymakers, however, should not seek to legislate or regulate the details of how education is delivered to students.

Finally, policies can structure incentives so that responsibility and authority are more closely aligned. In large school bureaucracies, authority for decisions and responsibility for practice are widely separated, usually by many layers of hierarchy. Boards and top-level administrators make decisions while teachers, principals, and students are responsible for carrying them out. It is for this reason that accountability for results is hard to achieve. When the desired outcomes of hierarchically-imposed policies are not realized, policymakers blame the school people responsible for implementation; practitioners blame their inability to devise or pursue better solutions on the constraints of policy. No one can be fully accountable for the results of practice when authority and responsibility are dispersed.

Furthermore, when authority for decisionmaking is far removed from practitioners and is regulatory in nature, change comes slowly. Dysfunctional consequences for students cannot be quickly remedied while edicts hang on, immune from the realities of school life and protected by the forces of inertia, lobbies

and constituencies both inside and outside the bureaucracy. The amount of effort and influence required to change a school system policy is so great that most teachers, principals, and parents find it impossible to deflect their energies from their primary jobs to the arduous and often unrewarding task of moving the behemoth.

Thus, adjustments in programs, course requirements, schedules, staffing, and materials to meet the needs of students are difficult to make; the knowledge of school staff about more productive alternatives is not used; and time is deflected from teaching to paperwork, monitoring, and reporting systems. Even where flexibility might exist, the pressures for conformity are so strong that principals and teachers are often afraid to test the limits of the regulatory structure. The end result is that when problems are identified, practitioners often claim they have no authority to change the status quo. Eventually a general acceptance of the failings of the system comes to prevail, and cynicism overwhelms problem-solving initiatives by principals, teachers, or parents.

Federal Policy and Accountability

Ultimately, the question is how accountability for student learning can be enhanced. The first order question is what accountability consists of. Many currently equate accountability with something like monitoring of student test scores or tabulations of school management indicators. Unfortunately, this view leaves the student, the parent, the teacher, and the educational process entirely out of the equation. What parents have a right to expect when they are compelled to send their children to a public school is that their child will be under the care of competent people, who are committed to using the best knowledge available to meet the individual needs of that child. The parent has no assurance of accountability by virtue of knowing that school district procedures have been promulgated and school staff are required to file reports about these procedures.

Bureaucratic accountability can provide only the latter kind of assurance. It does not focus on the competence of staff but on the power of mandates to tell them what to do. It does not focus on the transmittal and use of teaching knowledge but on the regulation of standardized teaching practices, which by definition must, in some instances, fail to meet the needs of unstandardized students.

Professional accountability starts from a different premise. Its first assumption is that, since the work is too complex to be hierarchically prescribed and controlled, it must be structured so that practitioners can make responsible decisions, both individually and collectively. Accountability is provided by rigorous training and careful selection, serious and sustained internships for beginners, meaningful teacher evaluation, opportunities for professional development, and ongoing peer review of practice -- buttressed by collegial decisionmaking and consultation. By such means, professionals learn from each other, norms are established and transmitted, problems are exposed and tackled, parents' concerns are heard, and students' needs are better met.

In such a system, parents can expect that no teacher will be hired who has not had adequate training in how to teach, no teacher will be permitted to practice without supervision until he/she has mastered the professional knowledge base and its application, no teacher will be granted tenure who has not fully demonstrated his/her competence, and no decision about students will be made without adequate knowledge of good practice in light of student needs. Establishing professional norms of operation, by the many vehicles outlined above, creates as well a basis for parent input and standards and methods for redress of unsuitable practice that do not exist in a bureaucratic system of school administration. Supporting professional standards is the only way to stop the educational buck-passing that is encouraged, indeed produced, by hierarchical decisionmaking. Governments support this form of accountability through their incorporation of such standards in accreditation systems, in reimbursement regulations, and in conditions for the

support of demonstration programs. Public oversight of practice occurs through public representation on such bodies as licensing boards and hospital boards where input into professional standard-setting processes occurs; technical decisions are delegated to the members of the profession themselves.

There is ample evidence that these mechanisms have improved the general standard of practice in other occupations that have become professions, by strengthening the knowledge base, enhancing the competence of individual practitioners, and creating norms for ethical practice. However, this has sometimes occurred at the expense of widespread access to services, resulting in higher costs and unequal distributions of practitioners as a function of limits on entry. Furthermore, third party review mechanisms, with increased public oversight, have been introduced in a number of professions (medicine and accounting, for example) when peer review structures seem to have failed to prevent malpractice, inappropriate treatment, or excessive costs. Careful thought must be given to which traditional safeguards should be kept and which replaced.

There are a number of reasons why the particular modes of professionalization adopted by other occupations such as medicine, law, accounting, and architecture are not fully adaptable to or desirable for public school teaching. First, public education is not only a publicly-funded service (also true of an increasing share of medical services and some legal services), it is a right and an obligation made available to and required of its clientele. Because education is a right, it must be made available to all on equal terms. Because it is an obligation -- an activity which is compulsory for children for most of their youthful years -- the state must guarantee certain safeguards to ensure that no harm is done.

In addition, the state makes education compulsory to serve its own needs for an educated citizenry: socialization to a common culture, literacy as a basis for democratic participation, and training to serve economic ends. There are limits to the degree of control which the state is likely to delegate to any other source of

authority, professional or otherwise. Other sources of authority include parental authority to decide what education best meets the needs of children (and serves the tastes of the parents) and community authority to decide what education best meets the local community's view of what education is desirable. These are not only balanced against the views of professional educators, but are circumscribed as well by state regulation.

Indeed as education has become more fundamental to the welfare of both individual citizens and that of the state, the relative authority of parents and local communities has been lessened along with the authority of professional educators. Thus, we see increased attention to proposals for choice in public schooling alongside proposals for increased professionalization. Both in a sense are arguments for more leeway in addressing the individual needs of students. Often, choice and professionalization are advanced together (see e.g. Carnegie Forum, 1986), in the belief that greater diversity in schooling cannot be allowed or sustained unless students and parents can choose the form of schooling that is appropriate for them. Without some element of both choice and bureaucratic control in the system, images of heightened professionalism provoke fears that a professional cult will ignore the views of parents or the local community.

The legitimate demands of federal and state governments, local communities, parents, and professionals to determine the form of education that is most suitable, most fair, and most effective for a wide range of goals cannot be ignored. These forces that pull on public schools must be satisfied in any systemic answers to the reform dilemma. If one accepts the argument that a strengthened professional structure will improve the quality of education received by students, the task then becomes the creation of a policy setting in which such a structure can be supported without undermining other social goals.

To secure meaningful and lasting educational change in this country, we must

be prepared to create new and ultimately more productive forms of governance and accountability for public schools that will allow teachers to practice professionally in the interests of students while preserving our democratic traditions. This can only be accomplished by pursuing jointly the separate prerogatives of policymakers, parents, and teachers, and by enlisting public support and oversight of rigorous, professionally-defined standards of practice.

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Knowledge and Teaching: Foundations of the New Reform

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Lee S. Shulman builds his foundation for teaching reform on an idea of teaching that emphasizes comprehension and reasoning, transformation and reflection. "This emphasis is justified," he writes, "by the resoluteness with which research and policy have so blatantly ignored those aspects of teaching in the past." To articulate and justify this conception, Shulman responds to four questions: What are the sources of the knowledge base for teaching? In what terms can these sources be conceptualized? What are the processes of pedagogical reasoning and action? and What are the implications for teaching policy and educational reform? The answers—informed by philosophy, psychology, and a growing body of case-work based on young and experienced practitioners—go far beyond current reform assumptions and initiatives. The outcome for educational practitioners, scholars, and policymakers is a major redirection in how teaching is to be understood and teachers are to be trained and evaluated.

This article was selected for the November 1986 special issue on "Teachers, Teaching, and Teacher Education," but appears here because of the exigencies of publishing.

Prologue: A Portrait of Expertise

Richly developed portrayals of expertise in teaching are rare. While many characterizations of effective teachers exist, most of these dwell on the teacher's management of the classroom. We find few descriptions or analyses of teachers that give careful attention not only to the management of students in classrooms, but also to the management of *ideas* within classroom discourse. Both kinds of emphasis will be needed if our portrayals of good practice are to serve as sufficient guides to the design of better education. Let us examine one brief account.

A twenty-five-year veteran English teacher, Nancy, was the subject of a continuing study of experienced teachers that we had been conducting. The class was nearing the end of the second week of a unit on *Moby Dick*. The observer had been well impressed with the depth of Nancy's understanding of that novel and her skill as a pedagogue, as she documented how Nancy helped a group of California high school juniors grasp the many faces of that masterpiece. Nancy was a highly active teacher, whose classroom style employed substantial interaction with her students,

Harvard Educational Review Vol. 57 No. 1 February 1987
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both through recitations and more open-ended discussion. She was like a symphony conductor, posing questions, probing for alternative views, drawing out the shy while tempering the boisterous. Not much happened in the classroom that did not pass through Nancy, whose pacing and ordering, structuring and expanding, controlled the rhythm of classroom life.

Nancy characterized her treatment of literature in terms of a general theoretical model that she employed.

Basically, I break reading skills into four levels:

Level 1 is simply translation. . . . It is understanding the literal meaning, denotative, and frequently for students that means getting a dictionary.

Level 2 is connotative meaning and again you are still looking at the words. . . . What does that mean, what does that tell us about the character? . . . We looked at *The Scarlet Letter*. Hawthorne described a rose bush in the first chapter. Literal level is: What is a rose bush? More important, what does a rose bush suggest, what is it that comes to mind, what did you picture?

Level 3 is the level of interpretation It is the implication of Levels 1 and 2. If the author is using a symbol, what does that say about his view of life? In *Moby Dick*, the example I used in class was the boots. The boots would be the literal level. What does it mean when he gets under the bed? And the students would say, he is trying to hide something. Level 3 would be what does Melville say about human nature? What is the implication of this? What does this tell us about this character?

Level 4 is what I call application and evaluation and I try, as I teach literature, to get the students to Level 4, and that is where they take the literature and see how it has meaning for their own lives. Where would we see that event occur in our own society? How would people that we know be behaving if they are doing what these characters are doing? How is this piece of literature similar to our common experiences as human beings? . . . So my view of reading is basically to take them from the literal on the page to making it mean something in their lives. In teaching literature I am always working in and out of those levels. (Gudmundsdottir, in preparation)

Nancy employed this conceptual framework in her teaching, using it to guide her own sequencing of material and formulation of questions. She taught the framework explicitly to her students over the semester, helping them employ it like a scaffolding to organize their own study of the texts, to monitor their own thinking. Although as a teacher she maintained tight control of the classroom discourse, her teaching goals were to liberate her students' minds through literacy, eventually to use great works of literature to illuminate their own lives. Whichever work she was teaching, she understood how to organize it, frame it for teaching, divide it appropriately for assignments and activities. She seemed to possess a mental index for these books she had taught so often — *The Red Badge of Courage*, *Moby Dick*, *The Scarlet Letter*, *The Adventures of Huckleberry Finn* — with key episodes organized in her mind for different pedagogical purposes, different levels of difficulty, different kinds of pupils, different themes or emphases. Her combination of subject-matter understanding and pedagogical skill was quite dazzling.

When the observer arrived at the classroom one morning, she found Nancy sitting at her desk as usual. But her morning greeting elicited no response from Nancy other than a grimace and motion toward the pad of paper on her desktop. "I have laryngitis this morning and will not be able to speak aloud," said the note.

What's more, she appeared to be fighting the flu, for she had little energy. For a teacher who managed her classroom through the power of her voice and her manner, this was certainly a disabling condition. Or was it?

Using a combination of handwritten notes and whispers, she divided the class into small groups by rows, a tactic she had used twice before during this unit. Each group was given a different character who has a prominent role in the first chapters of the novel, and each group was expected to answer a series of questions about that character. Ample time was used at the end of the period for representatives of each group to report to the whole class. Once again the class had run smoothly, and the subject matter had been treated with care. But the style had changed radically, an utterly different teaching technology was employed, and still the students were engaged, and learning appeared to occur.

Subsequently, we were to see many more examples of Nancy's flexible style, adapted to the characteristics of learners, the complexities of subject matter, and her own physical condition. When learners experienced serious problems with a particular text, she self-consciously stayed at the lower levels of the reading ladder, helping the students with denotative and connotative meanings, while emphasizing literary interpretations somewhat less. When teaching *Huck Finn*, a novel she saw as less difficult than *Moby Dick*, her style changed once again. She gave much more autonomy to the students and did not directly run the classroom as much.

For *Huck Finn*, she abandoned the stage early on and let the students teach each other. She had the students working independently in eight multi-ability groups, each group tracing one of eight themes: hypocrisy; luck and superstition; greed and materialism; romantic ideas and fantasy; religion and the Bible; social class and customs; family, racism, and prejudice; freedom and conscience. There were only two reading checks at the beginning and only two rounds of reporting. Once the groups were underway, Nancy took a seat at the back of the class and only interacted with students when she was called upon, and during group presentations. (Gudmundsdottir, in preparation)

Thus Nancy's pattern of instruction, her style of teaching, is not uniform or predictable in some simple sense. She flexibly responds to the difficulty and character of the subject matter, the capacities of the students (which can change even over the span of a single course), and her educational purposes. She can not only conduct her orchestra from the podium, she can sit back and watch it play with virtuosity by itself.

What does Nancy believe, understand, and know how to do that permits her to teach as she does? Can other teachers be prepared to teach with such skill? The hope that teaching like Nancy's can become typical instead of unusual motivates much of the effort in the newly proposed reforms of teaching.

The New Reforms

During the past year the U.S. public and its professional educators have been presented with several reports on how to improve teaching as both an activity and a profession. One of the recurring themes of these reports has been the professionalization of teaching—the elevation of teaching to a more respected, more responsible, more rewarding and better rewarded occupation. The claim that teaching deserves professional status, however, is based on a more fundamental premise: that the standards by which the education and performance of teachers must be

judged can be raised and more clearly articulated. The advocates of professional reform base their arguments on the belief that there exists a "knowledge base for teaching"—a codified or codifiable aggregation of knowledge, skill, understanding, and technology, of ethics and disposition, of collective responsibility—as well as a means for representing and communicating it. The reports of the Holmes Group (1986) and the Carnegie Task Force (1986) rest on this belief and, furthermore, claim that the knowledge base is growing. They argue that it should frame teacher education and directly inform teaching practice.

The rhetoric regarding the knowledge base, however, rarely specifies the character of such knowledge. It does not say what teachers should know, do, understand, or profess that will render teaching more than a form of individual labor, let alone be considered among the learned professions.

In this paper, I present an argument regarding the content, character, and sources for a knowledge base of teaching that suggests an answer to the question of the intellectual, practical, and normative basis for the professionalization of teaching. The questions that focus the argument are: What are the sources of the knowledge base for teaching? In what terms can these sources be conceptualized? What are the implications for teaching policy and educational reform?¹

In addressing these questions I am following in the footsteps of many eminent scholars, including Dewey (1904), Scheffler (1965), Green (1971), Fenstermacher (1978), Smith (1980), and Schwab (1983), among others. Their discussions of what qualities and understandings, skills and abilities, and what traits and sensibilities render someone a competent teacher have continued to echo in the conference rooms of educators for generations. My approach has been conditioned, as well, by two current projects: a study of how new teachers learn to teach and an attempt to develop a national board for teaching.

First, for the past three years, my colleagues and I have been watching knowledge of pedagogy and content grow in the minds of young men and women. They have generously permitted us to observe and follow their eventful journeys from being teacher education students to becoming neophyte teachers. In this research, we are taking advantage of the kinds of insights Piaget provided from his investigations of knowledge growth. He discovered that he could learn a great deal about knowledge and its development from careful observation of the very young—those who were just beginning to develop and organize their intelligence. We are following this lead by studying those just learning to teach. Their development from students to teachers, from a state of expertise as learners through a novitiate as teachers exposes and highlights the complex bodies of knowledge and skill needed to function effectively as a teacher. The result is that error, success, and refinement—in a word, teacher-knowledge growth—are seen in high profile and in slow motion. The neophyte's stumble becomes the scholar's window.

Concurrently, we have found and explored cases of veteran teachers such as Nancy (Baxter, in preparation; Gudmundsdottir, in preparation; Hashweh, 1985)

¹ Most of the empirical work on which this essay rests has been conducted with secondary-school teachers, both new and experienced. While I firmly believe that much of the emphasis to be found here on the centrality of content knowledge in pedagogy holds reasonably well for the elementary level as well, I am reluctant to make that claim too boldly. Work currently underway at the elementary level, both by Leinhardt (1983) and her colleagues (for example, Leinhardt & Greeno, 1985; Leinhardt & Smith, 1986) and by our own research group, may help clarify this matter.

to compare with those of the novices. What these studies show is that the knowledge, understanding, and skill we see displayed haltingly, and occasionally masterfully, among beginners are often demonstrated with ease by the expert. But, as we have wrestled with our cases, we have repeatedly asked what teachers knew (or failed to know) that permitted them to teach in a particular manner.

Second, for much of the past year, I have engaged in quite a different project on the role of knowledge in teaching. In conjunction with the recent Carnegie initiative for the reform of the teaching profession, my colleagues and I have been studying ways to design a national board assessment for teaching, parallel in several ways to the National Board of Medical Examiners (Shulman & Sykes, 1986; Sykes, 1986). This challenge renders the questions about the definition and operationalization of knowledge in teaching as far more than academic exercises. If teachers are to be certified on the basis of well-grounded judgments and standards, then those standards on which a national board relies must be legitimized by three factors: they must be closely tied to the findings of scholarship in the academic disciplines that form the curriculum (such as English, physics, and history) as well as those that serve as foundations for the process of education (such as psychology, sociology, or philosophy); they must possess intuitive credibility (or "face validity") in the opinions of the professional community in whose interests they have been designed; and they must relate to the appropriate normative conceptions of teaching and teacher education.

The new reform proposals carry assumptions about the knowledge base for teaching: when advocates of reform suggest that requirements for the education of teachers should be augmented and periods of training lengthened, they assume there must be something substantial to be learned. When they recommend that standards be raised and a system of examinations introduced, they assume there must exist a body of knowledge and skill to examine. Our research and that of others (for example, Berliner, 1986; Leinhardt & Greeno, 1986) have identified the sources and suggested outlines of that knowledge base. Watching veterans such as Nancy teach the same material that poses difficulties for novice teachers helped focus our attention on what kinds of knowledge and skill were needed to teach demanding materials well. By focusing on the teaching of particular topics—*Huck Finn*, quadratic equations, the Indian subcontinent, photosynthesis—we learned how particular kinds of content knowledge and pedagogical strategies necessarily interacted in the minds of teachers.

What follows is a discussion of the sources and outlines of the required knowledge base for teaching. I divide this discussion into two distinct analyses. First, after providing an overview of one framework for a knowledge base for teaching, I examine the *sources* of that knowledge base, that is, the domains of scholarship and experience from which teachers may draw their understanding. Second, I explore the processes of pedagogical reasoning and action within which such teacher knowledge is used.

The Knowledge Base

Begin a discussion on the knowledge base of teaching, and several related questions immediately arise: What knowledge base? Is enough known about teaching to support a knowledge base? Isn't teaching little more than personal style, artful

communication, knowing some subject matter, and applying the results of recent research on teaching effectiveness? Only the last of these, the findings of research on effective teaching, is typically deemed a legitimate part of a knowledge base.

The actions of both policymakers and teacher educators in the past have been consistent with the formulation that teaching requires basic skills, content knowledge, and general pedagogical skills. Assessments of teachers in most states consist of some combination of basic-skills tests, an examination of competence in subject matter, and observations in the classroom to ensure that certain kinds of general teaching behavior are present. In this manner, I would argue, teaching is trivialized, its complexities ignored, and its demands diminished. Teachers themselves have difficulty in articulating what they know and how they know it.

Nevertheless, the policy community at present continues to hold that the skills needed for teaching are those identified in the empirical research on teaching effectiveness. This research, summarized by Brophy and Good (1986), Gage (1986), and Rosenshine and Stevens (1986), was conducted within the psychological research tradition. It assumes that complex forms of situation-specific human performance can be understood in terms of the workings of underlying generic processes. In a study of teaching context, the research, therefore, seeks to identify those general forms of teaching behavior that correlate with student performance on standardized tests, whether in descriptive or experimental studies. The investigators who conduct the research realize that important simplifications must be made, but they believe that these are necessary steps for conducting scientific studies. Critical features of teaching, such as the subject matter being taught, the classroom context, the physical and psychological characteristics of the students, or the accomplishment of purposes not readily assessed on standardized tests, are typically ignored in the quest for general principles of effective teaching.

When policymakers have sought "research-based" definitions of good teaching to serve as the basis for teacher tests or systems of classroom observation, the lists of teacher behaviors that had been identified as effective in the empirical research were translated into the desirable competencies for classroom teachers. They became items on tests or on classroom-observation scales. They were accorded legitimacy because they had been "confirmed by research." While the researchers understood the findings to be simplified and incomplete, the policy community accepted them as sufficient for the definitions of standards.

For example, some research had indicated that students achieved more when teachers explicitly informed them of the lesson's objective. This seems like a perfectly reasonable finding. When translated into policy, however, classroom-observation competency-rating scales asked whether the teacher had written the objective on the blackboard and/or directly told the student the objectives at the beginning of class. If the teacher had not, he or she was marked off for failing to demonstrate a desired competency. No effort was made to discover whether the withholding of an objective might have been consistent with the form of the lesson being organized or delivered.

Moreover, those who hold with bifurcating content and teaching processes have once again introduced into policy what had been merely an act of scholarly convenience and simplification in the research. Teaching processes were observed and evaluated without reference to the adequacy or accuracy of the ideas transmitted.

In many cases, observers were not expected to have content expertise in the areas being observed, because it did not matter for the rating of teacher performance. Thus, what may have been an acceptable strategy for research became an unacceptable policy for teacher evaluation.

In this paper I argue that the results of research on effective teaching, while valuable, are not the sole source of evidence on which to base a definition of the knowledge base of teaching. Those sources should be understood to be far richer and more extensive. Indeed, properly understood, the actual and potential sources for a knowledge base are so plentiful that our question should not be, Is there really much one needs to know in order to teach? Rather, it should express our wonder at how the extensive knowledge of teaching can be learned at all during the brief period allotted to teacher preparation. Much of the rest of this paper provides the details of the argument that there exists an elaborate knowledge base for teaching.

A View of Teaching

I begin with the formulation that the capacity to teach centers around the following commonplaces of teaching, paraphrased from Fenstermacher (1986). A teacher knows something not understood by others, presumably the students. The teacher can transform understanding, performance skills, or desired attitudes or values into pedagogical representations and actions. These are ways of talking, showing, enacting, or otherwise representing ideas so that the unknowing can come to know, those without understanding can comprehend and discern, and the unskilled can become adept. Thus, teaching necessarily begins with a teacher's understanding of what is to be learned and how it is to be taught. It proceeds through a series of activities during which the students are provided specific instruction and opportunities for learning,² though the learning itself ultimately remains the responsibility of the students. Teaching ends with new comprehension by both the teacher and the student.³ Although this is certainly a core conception of teaching, it is also an incomplete conception. Teaching must properly be understood to be more than the enhancement of understanding; but if it is not even that, then ques-

² There are several aspects of this formulation that are unfortunate, if only for the impression they may leave. The rhetoric of the analysis, for example, is not meant to suggest that education is reduced to knowledge transmission, the conveying of information from an active teacher to a passive learner, and that this information is viewed as product rather than process. My conception of teaching is not limited to direct instruction. Indeed, my affinity for discovery learning and inquiry teaching is both enthusiastic and ancient (for example, Shulman & Keislar, 1966). Yet even in those most student-centered forms of education, where much of the initiative is in the hands of the students, there is little room for teacher ignorance. Indeed, we have reason to believe that teacher comprehension is even more critical for the inquiry-oriented classroom than for its more didactic alternative.

Central to my concept of teaching are the objectives of students learning how to understand and solve problems, learning to think critically and creatively as well as learning facts, principles, and rules of procedure. Finally, I understand that the learning of subject matter is often not an end in itself, but rather a vehicle employed in the service of other goals. Nevertheless, at least at the secondary level, subject matter is a nearly universal vehicle for instruction, whatever the ultimate goal.

³ This formulation is drawn from the teacher's perspective and, hence, may be viewed by some readers as overly teacher-centered. I do not mean to diminish the centrality of student learning for the process of education, nor the priority that must be given to student learning over teacher comprehension. But our analyses of effective teaching must recognize that outcomes for teachers as well as pupils must be considered in any adequate treatment of educational outcomes.

tions regarding performance of its other functions remain moot. The next step is to outline the categories of knowledge that underlie the teacher understanding needed to promote comprehension among students.

Categories of the Knowledge Base

If teacher knowledge were to be organized into a handbook, an encyclopedia, or some other format for arraying knowledge, what would the category headings look like?⁴ At minimum, they would include:

- content knowledge;
- general pedagogical knowledge, with special reference to those broad principles and strategies of classroom management and organization that appear to transcend subject matter;
- curriculum knowledge, with particular grasp of the materials and programs that serve as "tools of the trade" for teachers;
- pedagogical content knowledge, that special amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding;
- knowledge of learners and their characteristics;
- knowledge of educational contexts, ranging from the workings of the group or classroom, the governance and financing of school districts, to the character of communities and cultures; and
- knowledge of educational ends, purposes, and values, and their philosophical and historical grounds.

Among those categories, pedagogical content knowledge is of special interest because it identifies the distinctive bodies of knowledge for teaching. It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction. Pedagogical content knowledge is the category most likely to distinguish the understanding of the content specialist from that of the pedagogue. While far more can be said regarding the categories of a knowledge base for teaching, elucidation of them is not a central purpose of this paper.

Enumerating the Sources

There are at least four major sources for the teaching knowledge base: (1) scholarship in content disciplines, (2) the materials and settings of the institutionalized educational process (for example, curricula, textbooks, school organizations and finance, and the structure of the teaching profession), (3) research on schooling, social organizations, human learning, teaching and development, and the other social and cultural phenomena that affect what teachers can do, and (4) the wisdom of practice itself. Let me elaborate on each of these.

Scholarship in content disciplines. The first source of the knowledge base is content knowledge—the knowledge, understanding, skill, and disposition that are to be

⁴ I have attempted this list in other publications, though, admittedly, not with great cross-article consistency (for example, Shulman, 1986b; Shulman & Sykes, 1986; Wilson, Shulman & Richert, in press).

learned by school children. This knowledge rests on two foundations: the accumulated literature and studies in the content areas, and the historical and philosophical scholarship on the nature of knowledge in those fields of study. For example, the teacher of English should know English and American prose and poetry, written and spoken language use and comprehension, and grammar. In addition, he or she should be familiar with the critical literature that applies to particular novels or epics that are under discussion in class. Moreover, the teacher should understand alternative theories of interpretation and criticism, and how these might relate to issues of curriculum and of teaching.

Teaching is, essentially, a learned profession. A teacher is a member of a scholarly community. He or she must understand the structures of subject matter, the principles of conceptual organization, and the principles of inquiry that help answer two kinds of questions in each field: What are the important ideas and skills in this domain? and How are new ideas added and deficient ones dropped by those who produce knowledge in this area? That is, what are the rules and procedures of good scholarship or inquiry? These questions parallel what Schwab (1964) has characterized as knowledge of substantive and syntactic structures, respectively. This view of the sources of content knowledge necessarily implies that the teacher must have not only depth of understanding with respect to the particular subjects taught, but also a broad liberal education that serves as a framework for old learning and as a facilitator for new understanding. The teacher has special responsibilities in relation to content knowledge, serving as the primary source of student understanding of subject matter. The manner in which that understanding is communicated conveys to students what is essential about a subject and what is peripheral. In the face of student diversity, the teacher must have a flexible and multifaceted comprehension, adequate to impart alternative explanations of the same concepts or principles. The teacher also communicates, whether consciously or not, ideas about the ways in which "truth" is determined in a field and a set of attitudes and values that markedly influence student understanding. This responsibility places special demands on the teacher's own depth of understanding of the structures of the subject matter, as well as on the teacher's attitudes toward and enthusiasms for what is being taught and learned. These many aspects of content knowledge, therefore, are properly understood as a central feature of the knowledge base of teaching.

Educational materials and structures. To advance the aims of organized schooling, materials and structures for teaching and learning are created. These include: curricula with their scopes and sequences; tests and testing materials; institutions with their hierarchies, their explicit and implicit systems of rules and roles; professional teachers' organizations with their functions of negotiation, social change, and mutual protection; government agencies from the district through the state and federal levels; and general mechanisms of governance and finance. Because teachers necessarily function within a matrix created by these elements, using and being used by them, it stands to reason that the principles, policies, and facts of their functioning comprise a major source for the knowledge base. There is no need to claim that a specific literature undergirds this source, although there is certainly abundant research literature in most of these domains. But if a teacher has to "know the territory" of teaching, then it is the landscape of such materials, institutions, organizations, and mechanisms with which he or she must be familiar.

These comprise both the tools of the trade and the contextual conditions that will either facilitate or inhibit teaching efforts.

Formal educational scholarship. A third source is the important and growing body of scholarly literature devoted to understanding the processes of schooling, teaching, and learning. This literature includes the findings and methods of empirical research in the areas of teaching, learning, and human development, as well as the normative, philosophical, and ethical foundations of education.

The normative and theoretical aspects of teaching's scholarly knowledge are perhaps most important. Unfortunately, educational policymakers and staff developers tend to treat only the findings of empirical research on teaching and learning as relevant portions of the scholarly knowledge base. But these research findings, while important and worthy of careful study, represent only one facet of the contribution of scholarship. Perhaps the most enduring and powerful scholarly influences on teachers are those that enrich their images of the possible: their visions of what constitutes good education, or what a well-educated youngster might look like if provided with appropriate opportunities and stimulation.

The writings of Plato, Dewey, Neill, and Skinner all communicate their conceptions of what a good educational system should be. In addition, many works written primarily to disseminate empirical research findings also serve as important sources of these concepts. I count among these such works as Bloom's (1976) on mastery learning and Rosenthal and Jacobson's (1968) on teacher expectations. Quite independent of whether the empirical claims of those books can be supported, their impact on teachers' conceptions of the possible and desirable ends of education is undeniable. Thus, the philosophical, critical, and empirical literature which can inform the goals, visions, and dreams of teachers is a major portion of the scholarly knowledge base of teaching.

A more frequently cited kind of scholarly knowledge grows out of the empirical study of teaching effectiveness. This research has been summarized recently by Gage (1978, 1986), Shulman (1986a), Brophy and Good (1986), and Rosenshine and Stevens (1986). The essential goal of this program of research has been to identify those teacher behaviors and strategies most likely to lead to achievement gains among students. Because the search has focused on generic relationships—teacher behaviors associated with student academic gains irrespective of subject matter or grade level—the findings have been much more closely connected with the management of classrooms than with the subtleties of content pedagogy. That is, the effective-teaching principles deal with making classrooms places where pupils can attend to instructional tasks, orient themselves toward learning with a minimum of disruption and distraction, and receive a fair and adequate opportunity to learn. Moreover, the educational purposes for which these research results are most relevant are the teaching of skills. Rosenshine (1986) has observed that effective teaching research has much less to offer to the teaching of understanding, especially of complex written material; thus, the research applies more to teaching a skill like multiplication than to teaching critical interpretations of, say, the *Federalist Papers*.

There are a growing number of such generic principles of effective teaching, and they have already found their way into examinations such as the National Teachers Examination and into state-level assessments of teaching performance during the first teaching year. Their weakness, that they essentially ignore the con-

tent-specific character of most teaching, is also their strength. Discovering, explicating, and codifying general teaching principles simplify the otherwise outrageously complex activity of teaching. The great danger occurs, however, when a general teaching principle is distorted into prescription, when maxim becomes mandate. Those states that have taken working principles of teaching, based solely on empirical studies of generic teaching effectiveness, and have rendered them as hard, independent criteria for judging a teacher's worth, are engaged in a political process likely to injure the teaching profession rather than improve it.

The results of research on learning and development also fall within the area of empirical research findings. This research differs from research on teaching by the unit of investigation. Studies of teaching typically take place in conventional classrooms. Learning and development are ordinarily studied in individuals. Hence, teaching studies give accounts of how teachers cope with the inescapable character of schools as places where groups of students work and learn in concert. By comparison, learning and development studies produce principles of individual thought or behavior that must often be generalized to groups with caution if they are to be useful for schoolteaching.

The research in these domains can be both generic and content-specific. For example, cognitive psychological research contributes to the development of understanding of how the mind works to store, process, and retrieve information. Such general understanding can certainly be a source of knowledge for teachers, just as the work of Piaget, Maslow, Erikson, or Bloom has been and continues to be. We also find work on specific subject matter and student developmental levels that is enormously useful; for example, we learn about student misconceptions in the learning of arithmetic by elementary school youngsters (Erlwanger, 1975) or difficulties in grasping principles of physics by university and secondary school students (for example, Clement, 1982). Both these sorts of research contribute to a knowledge base for teaching.

Wisdom of practice. The final source of the knowledge base is the least codified of all. It is the wisdom of practice itself, the maxims that guide (or provide reflective rationalization for) the practices of able teachers. One of the more important tasks for the research community is to work with practitioners to develop codified representations of the practical pedagogical wisdom of able teachers. As indicated above, much of the conception of teaching embodied in this paper is derived from collecting, examining, and beginning to codify the emerging wisdom of practice among both inexperienced and experienced teachers.

The portrait of Nancy with which this paper began is only one of the many descriptions and analyses of excellent teaching we have been collecting over the past few years. As we organize and interpret such data, we attempt to infer principles of good practice that can serve as useful guidelines for efforts of educational reform. We attempt to keep the accounts highly contextualized, especially with respect to the content-specificity of the pedagogical strategies employed. In this manner we contribute to the documentation of good practice as a significant source for teaching standards. We also attempt to lay a foundation for a scholarly literature that records the details and rationales for specific pedagogical practice.

One of the frustrations of teaching as an occupation and profession is its extensive individual and collective amnesia, the consistency with which the best creations of its practitioners are lost to both contemporary and future peers. Unlike

fields such as architecture (which preserves its creations in both plans and edifices), law (which builds a case literature of opinions and interpretations), medicine (with its records and case studies), and even unlike chess, bridge, or ballet (with their traditions of preserving both memorable games and choreographed performances through inventive forms of notation and recording), teaching is conducted without an audience of peers. It is devoid of a history of practice.

Without such a system of notation and memory, the next steps of analysis, interpretation, and codification of principles of practice are hard to pursue. We have concluded from our research with teachers at all levels of experience that the potentially codifiable knowledge that can be gleaned from the wisdom of practice is extensive. Practitioners simply know a great deal that they have never even tried to articulate. A major portion of the research agenda for the next decade will be to collect, collate, and interpret the practical knowledge of teachers for the purpose of establishing a case literature and codifying its principles, precedents, and parables (Shulman, 1986b). A significant portion of the research agenda associated with the Carnegie program to develop new assessments for teachers involves the conducting of "wisdom-of-practice" studies. These studies record and organize the reasoning and actions of gifted teachers into cases to establish standards of practice for particular areas of teaching.⁵

A knowledge base for teaching is not fixed and final. Although teaching is among the world's oldest professions, educational research, especially the systematic study of teaching, is a relatively new enterprise. We may be able to offer a compelling argument for the broad outlines and categories of the knowledge base for teaching. It will, however, become abundantly clear that much, if not most, of the proposed knowledge base remains to be discovered, invented, and refined. As more is learned about teaching, we will come to recognize new categories of performance and understanding that are characteristic of good teachers, and will have to reconsider and redefine other domains. Our current "blueprint" for the knowledge base of teaching has many cells or categories with only the most rudimentary place-holders, much like the chemist's periodic table of a century ago. As we proceed, we will know that something can be known in principle about a particular aspect of teaching, but we will not yet know what that principle or practice entails. At base, however, we believe that scholars and expert teachers are able to define, describe, and reproduce good teaching.

The Processes of Pedagogical Reasoning and Action

The conception of teaching I shall discuss has emerged from a number of sources, both philosophical and empirical. A key source has been the several dozen teachers whom we have been studying in our research during the past three years. Through interviews, observations, structured tasks, and examination of materials, we have attempted to understand how they commute from the status of learner to that of

⁵ It might be argued that the sources of skilled performances are typically tacit, and unavailable to the practitioner. But teaching requires a special kind of expertise or artistry, for which explaining and showing are the central features. Tacit knowledge among teachers is of limited value if the teachers are held responsible for explaining what they do and why they do it, to their students, their communities, and their peers.

teacher,⁶ from being able to comprehend subject matter for themselves, to becoming able to elucidate subject matter in new ways, reorganize and partition it, clothe it in activities and emotions, in metaphors and exercises, and in examples and demonstrations, so that it can be grasped by students.

As we have come to view teaching, it begins with an act of reason, continues with a process of reasoning, culminates in performances of imparting, eliciting, involving, or enticing, and is then thought about some more until the process can begin again. In the discussion of teaching that follows, we will emphasize teaching as comprehension and reasoning, as transformation and reflection. This emphasis is justified by the resoluteness with which research and policy have so blatantly ignored those aspects of teaching in the past.

Fenstermacher (1978, 1986) provides a useful framework for analysis. The goal of teacher education, he argues, is not to indoctrinate or train teachers to behave in prescribed ways, but to educate teachers to reason soundly about their teaching as well as to perform skillfully. Sound reasoning requires both a process of thinking about what they are doing and an adequate base of facts, principles, and experiences from which to reason. Teachers must learn to use their knowledge base to provide the grounds for choices and actions. Therefore, teacher education must work with the beliefs that guide teacher actions, with the principles and evidence that underlie the choices teachers make. Such reasons (called "premises of the practical argument" in the analysis of Green, 1971, on which Fenstermacher bases his argument) can be predominantly arbitrary or idiosyncratic ("It sure seemed like the right idea at the time!" "I don't know much about teaching, but I know what I like."), or they can rest on ethical, empirical, theoretical, or practical principles that have substantial support among members of the professional community of teachers. Fenstermacher argues that good teaching not only is effective behaviorally, but must rest on a foundation of adequately grounded premises.

When we examine the quality of teaching, the idea of influencing the grounds or reasons for teachers' decisions places the emphasis precisely where it belongs: on the features of pedagogical reasoning that lead to or can be invoked to explain pedagogical actions. We must be cautious, however, lest we place undue emphasis upon the ways teachers reason to achieve particular ends, at the expense of attention to the grounds they present for selecting the ends themselves. Teaching is both effective and normative; it is concerned with both means and ends. Processes of reasoning underlie both. The knowledge base must therefore deal with the purposes of education as well as the methods and strategies of educating.

This image of teaching involves the exchange of ideas. The idea is grasped, probed, and comprehended by a teacher, who then must turn it about in his or her mind, seeing many sides of it. Then the idea is shaped or tailored until it can in turn be grasped by students. This grasping, however, is not a passive act. Just as the teacher's comprehension requires a vigorous interaction with the ideas, so students will be expected to encounter ideas actively as well. Indeed, our exemplary teachers present ideas in order to provoke the constructive processes of their

⁶ The metaphor of commuting is not used idly. The journey between learner and teacher is not one-way. In the best teachers, as well as in the more marginal, new learning is constantly required for teaching.

students and not to incur student dependence on teachers or to stimulate the flat-teries of imitation.⁷

Comprehension alone is not sufficient. The usefulness of such knowledge lies in its value for judgment and action. Thus, in response to my aphorism, "those who can, do; those who understand, teach" (Shulman, 1986b, p. 14), Petrie (1986) correctly observed that I had not gone far enough. Understanding, he argued, must be linked to judgment and action, to the proper uses of understanding in the forging of wise pedagogical decisions.

Aspects of Pedagogical Reasoning

I begin with the assumption that most teaching is initiated by some form of "text": a textbook, a syllabus, or an actual piece of material the teacher or student wishes to have understood. The text may be a vehicle for the accomplishment of other educational purposes, but some sort of teaching material is almost always involved. The following conception of pedagogical reasoning and action is taken from the point of view of the teacher, who is presented with the challenge of taking what he or she already understands and making it ready for effective instruction. The model of pedagogical reasoning and action is summarized in Table 1.

Given a text, educational purposes, and/or a set of ideas, pedagogical reasoning and action involve a cycle through the activities of comprehension, transformation, instruction, evaluation, and reflection.⁸ The starting point and terminus for the process is an act of comprehension.

Comprehension. To teach is first to understand. We ask that the teacher comprehend critically a set of ideas to be taught.⁹ We expect teachers to understand what they teach and, when possible, to understand it in several ways. They should understand how a given idea relates to other ideas within the same subject area and to ideas in other subjects as well.

Comprehension of purposes is also central here. We engage in teaching to achieve educational purposes, to accomplish ends having to do with student literacy, student freedom to use and enjoy, student responsibility to care and care for, to believe and respect, to inquire and discover, to develop understandings, skills, and values needed to function in a free and just society. As teachers, we also strive

⁷ The direction and sequence of instruction can be quite different as well. Students can literally initiate the process, proceeding by discovering, inventing, or inquiring, to prepare their own representations and transformations. Then it is the role of the teacher to respond actively and creatively to those student initiatives. In each case the teacher needs to possess both the comprehension and the capacities for transformation. In the student-initiated case, the flexibility to respond, judge, nurture, and provoke student creativity will depend on the teacher's own capacities for sympathetic transformation and interpretation.

⁸ Under some conditions, teaching may begin with "given a group of students." It is likely that at the early elementary grades, or in special education classes or other settings where children have been brought together for particular reasons, the starting point for reasoning about instruction may well be at the characteristics of the group itself. There are probably some days when a teacher necessarily uses the youngsters as a starting point.

⁹ Other views of teaching will also begin with comprehension, but of something other than the ideas or text to be taught and learned. They may focus on comprehension of a particular set of values, of the characteristics, needs, interests, or propensities of a particular individual or group of learners. But some sort of comprehension (or self-conscious confusion, wonder, or ignorance) will always initiate teaching.

TABLE 1
A Model of Pedagogical Reasoning and Action

Comprehension

Of purposes, subject matter structures, ideas within and outside the discipline

Transformation

Preparation: critical interpretation and analysis of texts, structuring and segmenting, development of a curricular repertoire, and clarification of purposes

Representation: use of a representational repertoire which includes analogies, metaphors, examples, demonstrations, explanations, and so forth

Selection: choice from among an instructional repertoire which includes modes of teaching, organizing, managing, and arranging

Adaptation and Tailoring to Student Characteristics: consideration of conceptions, preconceptions, misconceptions, and difficulties, language, culture, and motivations, social class, gender, age, ability, aptitude, interests, self concepts, and attention

Instruction

Management, presentations, interactions, group work, discipline, humor, questioning, and other aspects of active teaching, discovery or inquiry instruction, and the observable forms of classroom teaching

Evaluation

Checking for student understanding during interactive teaching

Testing student understanding at the end of lessons or units

Evaluating one's own performance, and adjusting for experiences

Reflection

Reviewing, reconstructing, reenacting and critically analyzing one's own and the class's performance, and grounding explanations in evidence

New Comprehensions

Of purposes, subject matter, students, teaching, and self

Consolidation of new understandings, and learnings from experience

to balance our goals of fostering individual excellence with more general ends involving equality of opportunity and equity among students of different backgrounds and cultures. Although most teaching begins with some sort of text, and the learning of that text can be a worthy end in itself, we should not lose sight of the fact that the text is often a vehicle for achieving other educational purposes. The goals of education transcend the comprehension of particular texts, but may be unachievable without it.

Saying that a teacher must first comprehend both content and purposes, however, does not particularly distinguish a teacher from non-teaching peers. We expect a math major to understand mathematics or a history specialist to comprehend history. But the key to distinguishing the knowledge base of teaching lies at the intersection of content and pedagogy, in the capacity of a teacher to transform the content knowledge he or she possesses into forms that are pedagogically powerful and yet adaptive to the variations in ability and background presented by the students. We now turn to a discussion of transformation and its components.

Transformation. Comprehended ideas must be transformed in some manner if they are to be taught. To reason one's way through an act of teaching is to think one's way from the subject matter as understood by the teacher into the minds and motivations of learners. Transformations, therefore, require some combination or ordering of the following processes, each of which employs a kind of repertoire: (1) preparation (of the given text materials) including the process of critical interpretation, (2) representation of the ideas in the form of new analogies, metaphors, and so forth, (3) instructional selections from among an array of teaching methods and models, and (4) adaptation of these representations to the general characteristics of the children to be taught, as well as (5) tailoring the adaptations to the specific youngsters in the classroom. These forms of transformation, these aspects of the process wherein one moves from personal comprehension to preparing for the comprehension of others, are the essence of the act of pedagogical reasoning, of teaching as thinking, and of planning—whether explicitly or implicitly—the performance of teaching.

Preparation involves examining and critically interpreting the materials of instruction in terms of the teacher's own understanding of the subject matter (Ben-Peretz, 1975). That is, one scrutinizes the teaching material in light of one's own comprehension and asks whether it is "fit to be taught." This process of preparation will usually include (1) detecting and correcting errors of omission and commission in the text, and (2) the crucial processes of structuring and segmenting the material into forms better adapted to the teacher's understanding and, in prospect, more suitable for teaching. One also scrutinizes educational purposes or goals. We find examples of this preparation process in a number of our studies. Preparation certainly draws upon the availability of a curricular repertoire, a grasp of the full array of extant instructional materials, programs, and conceptions.

Representation involves thinking through the key ideas in the text or lesson and identifying the alternative ways of representing them to students. What analogies, metaphors, examples, demonstrations, simulations, and the like can help to build a bridge between the teacher's comprehension and that desired for the students? Multiple forms of representation are desirable. We speak of the importance of a representational repertoire in this activity.¹⁰

Instructional selections occur when the teacher must move from the reformulation of content through representations to the embodiment of representations in instructional forms or methods. Here the teacher draws upon an instructional repertoire of approaches or strategies of teaching. This repertoire can be quite rich, including not only the more conventional alternatives such as lecture, demonstration, recitation, or seatwork, but also a variety of forms of cooperative learning,

¹⁰ The centrality of representation to our conception of pedagogical reasoning is important for relating our model of teaching to more general approaches to the study of human thinking and problem solving. Cognitive psychologists (for example, Gardner, 1986; Marton, 1986; Norman, 1980) argue that processes of internal representation are key elements in any cognitive psychology. "To my mind, the major accomplishment of cognitive science has been the clear demonstration of the validity of positing a level of mental representation: a set of constructs that can be invoked for the explanation of cognitive phenomena, ranging from visual perception to story comprehension" (Gardner, 1986, p. 383). Such a linkage between models of pedagogy and models of more general cognitive functioning can serve as an important imperus for the needed study of teacher thinking.

reciprocal teaching, Socratic dialogue, discovery learning, project methods, and learning outside the classroom setting.

Adaptation is the process of fitting the represented material to the characteristics of the students. What are the relevant aspects of student ability, gender, language, culture, motivations, or prior knowledge and skills that will affect their responses to different forms of representation and presentation? What student conceptions, misconceptions, expectations, motives, difficulties, or strategies might influence the ways in which they approach, interpret, understand, or misunderstand the material? Related to adaptation is tailoring, which refers to the fitting of the material to the specific students in one's classrooms rather than to students in general. When a teacher thinks through the teaching of something, the activity is a bit like the manufacture of a suit of clothing. Adaptation is like preparing a suit of a particular style, color, and size that can be hung on a rack. Once it is prepared for purchase by a particular customer, however, it must be tailored to fit perfectly.

Moreover, the activity of teaching is rarely engaged with a single student at a time. This is a process for which the special term "tutoring" is needed. When we speak of teaching under typical school circumstances, we describe an activity which brings instruction to groups of at least fifteen—or more typically, twenty-five to thirty-five—students. Thus, the tailoring of instruction entails fitting representations not only to particular students, but also to a group of a particular size, disposition, receptivity, and interpersonal "chemistry."

All these processes of transformation result in a plan, or set of strategies, to present a lesson, unit, or course. Up to this point, of course, it is all a rehearsal for the performances of teaching which have not yet occurred. Pedagogical reasoning is as much a part of teaching as is the actual performance itself. Reasoning does not end when instruction begins. The activities of comprehension, transformation, evaluation, and reflection continue to occur during active teaching. Teaching itself becomes a stimulus for thoughtfulness as well as for action. We therefore turn next to the performance that consummates all this reasoning in the act of instruction.

Instruction. This activity involves the observable performance of the variety of teaching acts. It includes many of the most crucial aspects of pedagogy: organizing and managing the classroom; presenting clear explanations and vivid descriptions; assigning and checking work; and interacting effectively with students through questions and probes, answers and reactions, and praise and criticism. It thus includes management, explanation, discussion, and all the observable features of effective direct and heuristic instruction already well-documented in the research literature on effective teaching.

We have compelling reasons to believe that there are powerful relationships between the comprehension of a new teacher and the styles of teaching employed. An example, based on the research of Grossman (1985), will illustrate this point.

Colleen had completed a master's degree in English before entering a teacher education program. She expressed confidence in her command of the subject matter and began her internship with energy and enthusiasm. Her view of literature and its teaching was highly interpretive and interactive. She saw fine literature as layered communication, capable of many diverse readings and interpretations.

Moreover, she felt that these various readings should be provided by her students through their own careful reading of the texts.

Colleen was so committed to helping students learn to read texts carefully, a habit of mind not often found among the young or old, that she constructed one assignment in which each student was asked to bring to school the lyrics of a favorite rock song. (She may have realized that some of these song lyrics were of questionable taste, but preferred to maximize motivation rather than discretion in this particular unit.) She then asked them to rewrite each line of the song, using synonyms or paraphrases to replace every original word. For many, it was the first time they had looked at any piece of text with such care.

When teaching a piece of literature, Colleen performed in a highly interactive manner, drawing out student ideas about a phrase or line, accepting multiple competing interpretations as long as the student could offer a defense of the construction by reference to the text itself. Student participation was active and hearty in these sessions. Based on these observations, one would have characterized Colleen's teaching style with descriptors such as student-centered, discussion-based, occasionally Socratic, or otherwise highly interactive.

Several weeks later, however, we observed Colleen teaching a unit on grammar. Although she had completed two university degrees in English, Colleen had received almost no preparation in prescriptive grammar. However, since a typical high school English class includes some grammar in addition to the literature and writing, it was impossible to avoid teaching the subject. She expressed some anxiety about it during a pre-observational interview.

Colleen looked like a different teacher during that lesson. Her interactive style evaporated. In its place was a highly didactic, teacher-directed, swiftly paced combination of lecture and tightly-controlled recitation: Socrates replaced by DISTAR. I sometimes refer to such teaching as the Admiral Farragut style, "Damn the questions, full speed ahead." Students were not given opportunities to raise questions or offer alternative views. After the session, she confessed to the observer that she had actively avoided making eye contact with one particular student in the front row because that youngster always had good questions or ideas and in this particular lesson Colleen really didn't want to encourage either, because she wasn't sure of the answers. She was uncertain about the content and adapted her instructional style to allay her anxiety.¹¹

Colleen's case illustrates the ways in which teaching behavior is bound up with comprehension and transformation of understanding. The flexible and interactive teaching techniques that she uses are simply not available to her when she does not understand the topic to be taught. Having examined the processes of pedagogical reasoning and performance that are prospective and enactive in nature, we now move to those that are retrospective.

Evaluation. This process includes the on-line checking for understanding and misunderstanding that a teacher must employ while teaching interactively, as well as the more formal testing and evaluation that teachers do to provide feedback and

¹¹ In no way do I wish to imply that effective lectures are out of place in a high school classroom. On the contrary, good lecturing is an indispensable teaching technique. In this case I am more interested in the relationship between knowledge and teaching. It might be suggested that this teaching style is more suited to grammar than to literature because there is little to discuss or interpret in a grammar lesson. I do not agree, but will not pursue the matter here. In Colleen's case, the rationale for a linear lecture was not grounded in such an argument, but quite clearly in her concern for limiting the range of possible deviations from the path she had designed.

grades. Clearly, checking for such understanding requires all the forms of teacher comprehension and transformation described above. To understand what a pupil understands will require a deep grasp of both the material to be taught and the processes of learning. This understanding must be specific to particular school subjects and to individual topics within the subject. This represents another way in which what we call pedagogical content knowledge is used. Evaluation is also directed at one's own teaching and at the lessons and materials employed in those activities. In that sense it leads directly to reflection.

Reflection. This is what a teacher does when he or she looks back at the teaching and learning that has occurred, and reconstructs, reenacts, and/or recaptures the events, the emotions, and the accomplishments. It is that set of processes through which a professional learns from experience. It can be done alone or in concert, with the help of recording devices or solely through memory. Here again, it is likely that reflection is not merely a disposition (as in, "she's such a reflective person!") or a set of strategies, but also the use of particular kinds of analytic knowledge brought to bear on one's work (Richert, in preparation). Central to this process will be a review of the teaching in comparison to the ends that were sought.

New comprehension. Thus we arrive at the new beginning, the expectation that through acts of teaching that are "reasoned" and "reasonable" the teacher achieves new comprehension, both of the purposes and of the subjects to be taught, and also of the students and of the processes of pedagogy themselves. There is a good deal of transient experiential learning among teachers, characterized by the "aha" of a moment that is never consolidated and made part of a new understanding or a reconstituted repertoire (Brodkey, 1986). New comprehension does not automatically occur, even after evaluation and reflection. Specific strategies for documentation, analysis, and discussion are needed.

Although the processes in this model are presented in sequence, they are not meant to represent a set of fixed stages, phases, or steps. Many of the processes can occur in different order. Some may not occur at all during some acts of teaching. Some may be truncated, others elaborated. In elementary teaching, for example, some processes may occur that are ignored or given short shrift in this model. But a teacher should demonstrate the capacity to engage in these processes when called upon, and teacher education should provide students with the understandings and performance abilities they will need to reason their ways through and to enact a complete act of pedagogy, as represented here.

Knowledge, Teaching Policy, and Educational Reform

The investigations, deliberations, and debates regarding what teachers should know and know how to do have never been more active. Reform efforts are underway: they range from raising standards for admission into teacher education programs, to establishing state and national examinations for teachers; from insisting that teacher preparation require at least five years of higher education (because there is so much to learn), to organizing elaborate programs of new-teacher induction and mentoring (because the most important learning and socialization can occur only in the workplace).

Most of the current reforms rest on the call for greater professionalization in teaching, with higher standards for entry, greater emphasis on the scholarly bases

for practice, more rigorous programs of theoretical and practical preparation, better strategies for certification and licensure, and changes in the workplace that permit greater autonomy and teacher leadership. In large measure, they call for teaching to follow the model of other professions that define their knowledge bases in systematic terms, require extended periods of preparation, socialize neophytes into practice with extended periods of internship or residency, and employ demanding national and state certification procedures.

Implicit in all these reforms are conceptions of teacher competence. Standards for teacher education and assessment are necessarily predicated on images of teaching and its demands. The conception of the knowledge base of teaching presented in this paper differs in significant ways from many of those currently existing in the policy community. The emphasis on the integral relationships between teaching and the scholarly domains of the liberal arts makes clear that teacher education is the responsibility of the entire university, not the schools or departments of education alone. Moreover, teachers cannot be adequately assessed by observing their teaching performance without reference to the content being taught.

The conception of pedagogical reasoning places emphasis upon the intellectual basis for teaching performance rather than on behavior alone. If this conception is to be taken seriously, both the organization and content of teacher education programs and the definition of the scholarly foundations of education will require revision. Teacher education programs would no longer be able to confine their activity to the content-free domains of pedagogy and supervision. An emphasis on pedagogical content knowledge would permeate the teacher preparation curriculum. A national board examination for teachers would focus upon the teacher's ability to reason about teaching and to teach specific topics, and to base his or her actions on premises that can bear the scrutiny of the professional community.

We have an obligation to raise standards in the interests of improvement and reform, but we must avoid the creation of rigid orthodoxies. We must achieve standards without standardization. We must be careful that the knowledge-base approach does not produce an overly technical image of teaching, a scientific enterprise that has lost its soul. The serious problems in medicine and other health professions arise when doctors treat the disease rather than the person, or when the professional or personal needs of the practitioner are permitted to take precedence over the responsibilities to those being served.

Needed change cannot occur without risk, however. The currently incomplete and trivial definitions of teaching held by the policy community comprise a far greater danger to good education than does a more serious attempt to formulate the knowledge base. Nancy represents a model of pedagogical excellence that should become the basis for the new reforms. A proper understanding of the knowledge base of teaching, the sources for that knowledge, and the complexities of the pedagogical process will make the emergence of such teachers more likely.

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Preparation of this paper was made possible, in part, by grants to Stanford University from the Spencer Foundation for the project, Knowledge Growth in a Profession, and from the Carnegie Corporation of New York for research on the development of new modes of assessment for teachers, Lee S. Shulman, principal investigator. Suzanne Wilson, Pamela Grossman, and Judy Shulman provided criticism and counsel when it was most needed. A longer version of this paper will be available from the Carnegie Forum on Education and the Economy. The views expressed are the author's and are not necessarily shared by these organizations or individuals.

Five Models of Staff Development for Teachers

In the early 1970s, a growing concern about the effectiveness of inservice education resulted in a spate of studies to determine the attitudes of educators about these programs (Ainsworth, 1976; Brim & Tollett, 1974; Joyce & Peck, 1977; Zigarmi, Betz, & Jensen, 1977). The findings indicated nearly unanimous dissatisfaction with current efforts, but a strong consensus that inservice was critical if school programs and practices were to be improved (Wood & Kleine, 1987).

During the late 1970s and early 1980s, several major studies and reviews contributed to our understanding of the characteristics of effective staff development, focusing not on attitudes, but on actual practices (Berman & McLaughlin, 1978; Kells, 1980; Lawrence, 1974; Yarger, Howey, & Joyce, 1980). The resulting list of effective practices, well known by now, included:

- Programs conducted in school settings and linked to school-wide efforts
- Teachers participating as helpers to each other and as planners, with administrators, of inservice activities
- Emphasis on self instruction, with differentiated training opportunities

This article organizes what is known about effective staff development into five models currently being espoused and used by staff developers. A review of the supporting theory and research on these models is followed by a description of what is currently known about the organizational context that is required to support successful staff development efforts.

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- Teachers in active roles, choosing goals and activities for themselves
- Emphasis on demonstration, supervised trials, and feedback; training that is concrete and ongoing over time
- Ongoing assistance and support available on request

Staff development came of age in the 1980s. It was the focus of countless conferences, workshops, articles, books, and research reports. State legislators and administrators of local school districts saw staff development as a key aspect of school improvement efforts. Many school districts initiated extensive staff development projects to improve student learning. Research on these projects and craft knowledge generated by staff developers have substantially advanced our understanding of effective staff development practices beyond the overview studies of the early 1980s referred to above.

Introduction

In spite of this recent intense, widespread interest in staff development, much remains to be learned about the process. This article organizes what is known about effective staff development into five models currently being espoused and used by staff developers. A review of the supporting theory and research on these models is followed by a description of what is currently known about the organizational context that is required to support successful

staff development efforts. The conclusion discusses what can be said with confidence about effective staff development practice and what remains to be learned. First, however, are definitions of the key terms and a description of the literature that is used throughout the article.

Definitions

Staff development is defined as those processes that improve the job-related knowledge, skills, or attitudes of school employees. While participants in staff development activities may include school board members, central office administrators, principals, and non-certified staff, this article focuses on staff development for teachers. In particular, it examines what is known about staff development that is intended to improve student learning through enhanced teacher performance.

Two uses of the word "model" have been combined in an effort to both conceptualize staff development and make this conceptualization useful to staff developers. First, borrowing from Ingvarson's (1987) use of the term, a model can be seen as a design for learning which embodies a set of assumptions about (a) where knowledge about teaching practice comes from, and (b) how teachers acquire or extend their knowledge. Models chosen for discussion differ in their assumptions. Second, adapting Joyce and Weil's (1972) definition of a model of teaching, a staff development model is a pattern or plan which can be used to guide the design of a staff development program.

Each staff development model presented below is discussed in terms of its theoretical and research underpinnings, its critical attributes (including its underlying assumptions and phases of activities), and illustrations of its impact on teacher growth and development. The literature supporting these models is of several types. First, for each model, the theoretical and research bases that support its use in improving teachers' knowledge, skills, or attitudes are considered. The question asked was: Why should one believe that this model *should* affect teachers' classroom behavior? Second, program descriptions were reviewed in which these models were applied. The question asked was: What evidence exists that demonstrates

that this model can be implemented by staff developers in schools and school districts? Third, data about outcomes was sought. The question asked was: What evidence indicates that this model actually makes a difference in teacher performance?

An Overview

This article presents five models of staff development: (a) individually-guided staff development, (b) observation/assessment, (c) involvement in a development/improvement process, (d) training, and (e) inquiry.

Individually-guided staff development refers to a process through which teachers plan for and pursue activities they believe will promote their own learning. The observation/assessment model provides teachers with objective data and feedback regarding their classroom performance. This process may in itself produce growth or it can provide information that may be used to select areas for growth.

Involvement in a development/improvement process engages teachers in developing curriculum, designing programs, or engaging in a school improvement process to solve general or particular problems. The inquiry model requires that teachers identify an area of instructional interest, collect data, and make changes in their instruction based on an interpretation of those data. The training model (which may be synonymous with staff development in the minds of many educators) involves teachers in acquiring knowledge or skills through appropriate individual or group instruction.

Next, this article examines the organizational context that is required to support these models. Our discussion includes organizational climate, leadership and support, district policies and systems, and participant involvement.

The final section looks for gaps in the knowledge base of staff development, identifying areas about which there is still more to learn and areas that as yet remain unexplored by researchers. The hope is that this article and the chapter from which it is adapted will serve as both a signpost for how far we have come in the past 20 years in our understanding of effective staff development practices and a springboard for future research in this vital area.

Staff development came of age in the 1980s. It was the focus of countless conferences, workshops, articles, books, and research reports. State legislators and administrators of local school districts saw staff development as a key aspect of school improvement efforts. Many school districts initiated extensive staff development projects to improve student learning.

Five Models of Staff Development

I. Individually-Guided Staff Development

Teachers learn many things on their own. They read professional publications, have discussions with colleagues, and experiment with new instructional strategies, among other activities. All of these may occur with or without the existence of a formal staff development program.

It is possible, however, for staff development programs to actively promote individually-guided activities. While the actual activities may vary widely, the key characteristic of the individually-guided staff development model is that the learning is designed by the teacher. The teacher determines his or her own goals and selects the activities that will result in the achievement of those goals. Perhaps a sense of this model is best represented in an advertisement for the Great Books Foundation which reads: "At 30, 50, or 70, you are more self-educable than you were at 20. It's time to join a Great Books reading and discussion group."

Underlying assumptions. This model assumes that individuals can best judge their own learning needs and that they are capable of self direction and self-initiated learning. It also assumes that adults learn most efficiently when they initiate and plan their learning activities rather than spending their time in activities that are less relevant than those they would design. (It is, however, true that when individual teachers design their own learning there is much "reinventing of the wheel," which may seem inefficient to some observers.) The model also holds that individuals will be most motivated when they select their own learning goals based on their personal assessment of their needs.

Theoretical and research underpinnings. According to Lawrence's (1974) review of 97 studies of inservice programs, programs with individualized activities were more likely to achieve their objectives than were those that provided identical experiences for all participants. Theory supporting the individually-guided model can be found in the work of a number of individuals. Rogers' (1969) client-centered therapy and views on education are based on the premise that human beings will seek growth given the appropriate conditions. "I have come to feel,"

Rogers wrote, "that the only learning which significantly influences behavior is self-discovered, self-appropriated learning" (p. 153).

The differences in people and their needs are well represented in the literature on adult learning theory, adult development, learning styles, and the change process. Adult learning theorists (Kidd, 1973; Knowles, 1980) believe that adults become increasingly self-directed and that their readiness to learn is stimulated by real life tasks and problems. Stage theorists (Levine, 1989) hold that individuals in different stages of development have different personal and professional needs. Consequently, staff development that provides practical classroom management assistance to a 22-year-old beginning teacher may be inappropriate for a teaching veteran who is approaching retirement.

Learning styles researchers (Dunn & Dunn, 1978; Gregorc, 1979) argue that individuals are different in the ways they perceive and process information and in the manner in which they most effectively learn (e.g., alone or with others, by doing as opposed to hearing about). Research on the Concerns-Based Adoption Model (CBAM) (Hall & Loucks, 1978) indicates that as individuals learn new behaviors and change their practice, they experience different types of concerns that require different types of responses from staff developers. For instance, when first learning about a new instructional technique, some teachers with personal concerns require reassurance that they will not be immediately evaluated on the use of the strategy, while a teacher with management concerns wants to know how this technique can be used in the classroom.

Taken together, these theorists and researchers recognize that the circumstances most suitable for one person's professional development may be quite different from those that promote another individual's growth. Consequently, individually-guided staff development allows teachers to find answers to self-selected professional problems using their preferred modes of learning.

Phases of activity. Individually-guided staff development consists of several phases: (a) the identification of a need or interest, (b) the development of a plan to meet the need or interest, (c) the learning

activity(ies), and (d) assessment of whether the learning meets the identified need or interest. These phases might be undertaken informally and almost unconsciously, or they may be part of a formal, structured process. Each phase is explained in greater detail below.

With the identification of a need or interest, the teacher considers what he or she needs to learn. This assessment may be done formally (e.g., the completion of a needs assessment process or as a result of evaluation by a supervisor) or occur more spontaneously (e.g., a conversation with a colleague or reflection upon an instructional problem). The need or interest may be remedial (e.g., "I've really come to dislike my work because of the classroom management problems I'm having") or growth-oriented (e.g., "I'm intrigued by recent research on the brain and want to better understand its implications for student learning").

Having identified the need or interest, the teacher selects a learning objective and chooses activities that will lead to accomplishing this objective. Activities may include workshop attendance, reading, visits to another classroom or school, or initiation of a seminar or similar learning program.

The learning activity may be single session (e.g., attendance at a workshop on new approaches to reading in the content areas) or occur over time (e.g., examination of the research on retaining students in grade). Based on the individual's preferred mode of learning, it may be done alone (e.g., reading or writing), with others (e.g., a seminar that considers ways of boosting the self-esteem of high school students), or as a combination of these activities.

When assessing formal individually-guided processes the teacher may be asked to make a brief written report to the funding source or an oral report to colleagues. In other instances the teacher may simply be aware that he or she now better understands something. It is not uncommon that as a result of this assessment phase the teacher may realize how much more there is to be learned on the topic or be led to a newly emerging need or interest.

Illustrations and outcomes. Individually-guided staff development may take many forms. It may be as simple as a teacher reading a journal article on a

topic of interest. Other forms of individually-guided staff development are more complex. For instance, teachers may design and carry out special professional projects supported by incentive grants such as a competitive "teacher excellence fund" promoted by Boyer (1983) or "mini-grants" described by Mosher (1981). Their projects may involve research, curriculum development, or other learning activities. While evidence of outcomes for such programs is not substantial, there are indications that they can empower teachers to address their own problems, create a sense of professionalism, and provide intellectual stimulation (Loucks-Horsley, Harding, Arbuckle, Dubea, Murray, & Williams, 1987). This strategy proved effective in New York City and Houston, where teachers were supported to develop and disseminate their own exemplary programs through Impact II grants. They reported changes in their classroom practices, as well as increases in student attendance, discipline, and motivation (Mann, 1984-85).

Teacher evaluation and supervision can be a source of data for individually guided staff development. McGreal (1983) advocates that goal setting be the principal activity of teacher evaluation. Supervisors would assist in the establishment of those goals based on the motivation and ability of the teacher. The type of goals, the activities teachers engage in to meet the goals, and the amount of assistance provided by supervisors would differ from teacher to teacher based upon developmental level, interests, concerns, and instructional problems.

Similarly, Glatthorn's (1984) "differentiated supervision" calls for "self-directed development" as one form of assistance to teachers. Self-directed development is a goal-based approach to professional improvement in which teachers have access to a variety of resources for meeting their collaboratively identified needs.

Research on teacher centers also demonstrates the value of individually guided staff development. Hering and Howey (1982) summarized research conducted on 15 teacher centers sponsored by the Far West Laboratory for Educational Research and Development from 1978 to 1982. They concluded that, "the most important contribution of teachers' centers is their em-

phasis on working with individual teachers over time" (p. 2). Such a focus on individual teachers is absent from many traditional staff development programs, which teacher centers appear to complement quite effectively.

Hering and Howey (1982) reported that mini-grants of up to \$750 provided by the St. Louis Metropolitan Teacher Center were used to fund a variety of classroom-oriented projects. Interviews with participants found that teachers made extensive use of the ideas and products they developed. Some of these projects eventually affected not only an individual classroom, but a school or the entire district. Regarding this project, Hering and Howey concluded:

As would be expected, teachers who were given money and support reported high levels of satisfaction and a sense of accomplishment. Also not surprisingly, they developed projects anchored in the realities of the classroom and responsive to the needs and interests of their students. Perhaps most important, however, is the strong suggestion that they can, indeed, influence change and innovation in other classrooms, as well as their own, through projects they design at minimal costs. (p. 6)

Hering and Howey (1982) also report the findings for a study done on individualized services provided at the Northwest Staff Development Center in Livonia, Michigan. Even though these awards rarely exceeded \$50, 78 percent of the recipients reported that they had considerable control over their own learning and professional development. Almost 85 percent of the recipients thought that these services made a substantive difference in their classrooms. In summarizing the value of individualized services, the researchers wrote, "Individual teacher needs and concerns have to be attended to, as well as school-wide collective ones, or enthusiasm for the collective approach will quickly wane" (p. 6).

While there are many illustrations of an individualized approach to staff development in the literature and many more in practice, research on its impact on teaching is largely perceptual and self-report. Perhaps as more resources are directed to

The circumstances most suitable for one person's professional development may be quite different from those that promote another individual's growth. Consequently, individually-guided staff development allows teachers to find answers to self-selected professional problems using their preferred modes of learning.

supporting this strategy — particularly in the form of incentive grants to teachers — more will be learned about its contribution to teacher, as well as student, growth.

2. Observation/Assessment

"Feedback is the breakfast of champions" is the theme of Blanchard and Johnson's (1982) popular management book, *The One Minute Manager*. Yet many teachers receive little or no feedback on their classroom performance. In fact, in some school districts teachers may be observed by a supervisor as little as once every 3 years, and that observation/feedback cycle may be perfunctory in nature.

While observation/assessment can be a powerful staff development model, in the minds of many teachers it is associated with evaluation. Because this process often has not been perceived as helpful (Wise & Darling-Hammond, 1985), teachers frequently have difficulty understanding the value of this staff development model. However, once they have had an opportunity to learn about the many forms this model can take (for instance, peer coaching and clinical supervision, as well as teacher evaluation), it may become more widely practiced.

Underlying assumptions. One assumption underlying this model, according to Loucks-Horsley and her associates (1987), is that "Reflection and analysis are central means of professional growth" (p. 61). Observation and assessment of instruction provide the teacher with data that can be reflected upon and analyzed for the purpose of improving student learning.

A second assumption is that reflection by an individual on his or her own practice can be enhanced by another's observations. Since teaching is an isolated profession, typically taking place in the presence of no other adults, teachers are not able to benefit from the observations of others. Having "another set of eyes" gives a teacher a different view of how he or she is performing with students.

Another assumption is that observation and assessment of classroom teaching can benefit both involved parties — the teacher being observed and the observer. The teacher benefits by another's view of his or her behavior and by receiving helpful feedback from a colleague. The observer benefits by watching a colleague, preparing the feedback, and discussing the common ex-

perience.

A final assumption is that when teachers see positive results from their efforts to change, they are more apt to continue to engage in improvement. Because this model may involve multiple observations and conferences spread over time, it can help teachers see that change is possible. As they apply new strategies, they can see changes both in their own and their students' behavior. In some instances, measurable improvements in student learning will also be observed.

Individual teacher needs and concerns have to be attended to, as well as school-wide collective ones, or enthusiasm for the collective approach will quickly wane.

Theoretical and research underpinnings. Theoretical and research support for the observation/assessment model can be found in the literature on teacher evaluation, clinical supervision, and peer coaching. Each of these approaches is based on the premise that teaching can be objectively observed and analyzed and that improvement can result from feedback on that performance.

McGreal's (1982) work on teacher evaluation suggests a key role for classroom observation, but expresses a major concern about reliability of observations. The author points to two primary ways to increase the reliability of classroom observations. The first is to narrow the range of what is looked for by having a system that takes a narrowed focus on teaching (for instance, an observation system based on the Madeline Hunter approach to instruc-

tion), or by using an observation guide or focusing instrument. The second way is to use a pre-conference to increase the kind and amount of information the observer has prior to the observation. Glatthorn (1984) recommends that clinical supervisors (or coaches) alternate unfocused observations with focused observations. In unfocused observation the observer usually takes verbatim notes on all significant behavior. These data are used to identify some strengths and potential problems that are discussed in a problem-solving feedback conference. A focus is then determined for the next observation, during which the observer gathers data related to the identified problem.

Glickman (1986) suggests that the type of feedback provided teachers should be based on their cognitive levels. Teachers with a "low abstract" cognitive style should receive directive conferences (problem identification and solution come primarily from the coach or supervisor); "moderate-abstract" teachers should receive collaborative conferences (an exchange of perceptions about problems and a negotiated solution); and "high-abstract" teachers should receive a non-directive approach (the coach or supervisor helps the teacher clarify problems and choose a course of action).

Peer coaching is a form of the observation/assessment model that promotes transfer of learning to the classroom (Joyce & Showers, 1982). In peer observation, teachers visit one another's classrooms, gather objective data about student performance or teacher behavior, and give feedback in a follow-up conference. According to Joyce and Showers (1983):

Relatively few persons, having mastered a new teaching skill, will then transfer that skill into their active repertoire. In fact, few will use it at all. Continuous practice, feedback, and the companionship of coaches is essential to enable even highly motivated persons to bring additions to their repertoire under effective control. (p. 4)

Joyce (Brandt, 1987) says that up to 30 trials may be required to bring a new teaching strategy under "executive control." Similarly, Shalaway (1985) found that 10 to 15 coaching sessions may be

necessary for teachers to use what they have learned in their classrooms.

Phases of activity. The observation/assessment model — whether implemented through evaluation, clinical supervision, or peer coaching — usually includes a pre-observation conference, observation, analysis of data, post-observation conference, and (in some instances) an analysis of the observation/assessment process (Loucks-Horsley et al., 1987). In the pre-observation conference, a focus for the observation is determined, observation methods selected, and any special problems noted.

During the observation, data are collected using the processes agreed upon in the pre-observation conference. The observation may be focused on the students or on the teacher, and can be global in nature or narrowly focused. Patterns found during instruction may become evident. Hunter (1982) recommends three points of analysis: (a) behaviors that contribute to learning, (b) behaviors that interfere with learning, and (c) behaviors that neither contribute nor interfere, but use time and energy that could be better spent.

In the post-observation conference both the teacher and observer reflect on the lesson and the observer shares the data collected. Strengths are typically acknowledged and areas for improvement suggested (by either the teacher or observer, depending upon the goals established in the pre-observation conference). An analysis of the supervisory (or coaching) process itself, while not necessarily a part of all forms of this model, provides participants with an opportunity to reflect on the value of the observation/assessment process and to discuss modifications that might be made in future cycles.

Illustrations and outcomes. Acheson and Gall (1980) report a number of studies in which the clinical supervision model has been accepted by teachers when they and their supervisors are taught systematic observation techniques. They further note that this process is viewed as productive by teachers when the supervisor uses "indirect" behaviors (e.g., accepting feelings and ideas, giving praise and encouragement, asking questions). While the authors report that trained supervisors helped teachers make improvements in a number of instructional behaviors, they were un-

able to find any studies that demonstrated student effects.

The most intensive and extensive studies of the impact of observation/assessment on learning comes from the work of Showers and Joyce. Discussed in more detail in the training section, these authors and their associates have found that powerful improvements have been made to student learning when the training of teachers in effective instructional practices is followed by observations and coaching in their classrooms (Joyce &

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Showers, 1988). In a study that contrasted different sources of coaching, Sparks (1986) contrasted a workshop-only approach with peer coaching and with consultant coaching. Her findings indicated that peer coaching was most powerful in improving classroom performance.

The research, then, provides reason to believe that teacher behaviors can be positively influenced by the use of an observation/assessment model of staff development. It still remains to be learned, however, whether this model must be combined with particular kinds of training if student learning is to be enhanced.

3. Involvement in a Development/Improvement Process

Teachers are sometimes asked to develop or adapt curriculum, design programs, or engage in systematic school improvement processes that have as their goal the improvement of classroom instruction

and/or curriculum. Typically these projects are initiated to solve a problem. Their successful completion may require that teachers acquire specific knowledge or skills (e.g., curriculum planning, research on effective teaching, group problem-solving strategies). This learning could be acquired through reading, discussion, observation, training, and/or trial and error. In other instances, the process of developing a product itself may cause significant learnings (e.g., through experiential learning), some of which may have been difficult or impossible to predict in advance. This model focuses on the combination of learnings that result from the involvement of teachers in such development/improvement processes.

Underlying assumptions. One assumption on which this model is based is that adults learn most effectively when they have a need to know or a problem to solve (Knowles, 1980). Serving on a school improvement committee may require that teachers read the research on effective teaching and that they learn new group and interpersonal skills. Curriculum development may demand new content knowledge of teachers. In each instance, teachers' learning is driven by the demands of problem solving.

Another assumption of this model is that people working closest to the job best understand what is required to improve their performance. Their teaching experiences guide teachers as they frame problems and develop solutions. Given appropriate opportunities, teachers can effectively bring their unique perspectives to the tasks of improving teaching and their schools.

A final assumption is that teachers acquire important knowledge or skills through their involvement in school improvement or curriculum development processes. Such involvement may cause alterations in attitudes or the acquisition of skills as individuals or groups work toward the solution of a common problem. For instance, teachers may become more aware of the perspectives of others, more appreciative of individual differences, more skilled in group leadership, and better able to solve problems. While the learnings may be unpredictable in advance, they are often regarded as important by teachers.

Teachers acquire important knowledge or skills through their involvement in school improvement or curriculum development processes. Such involvement may cause alterations in attitudes or the acquisition of skills as individuals or groups work toward the solution of a common problem.

Theoretical and research underpinnings. We have chosen to represent curriculum development and school improvement as types of staff development; involvement in these processes nurtures teachers' growth. Others see staff development (perhaps viewed more narrowly as training) as a key component of effective curriculum development and implementation. As Joyce and Showers (1988) write, "It has been well established that curriculum implementation is demanding of staff development — essentially, without strong staff development programs that are appropriately designed a very low level of implementation occurs" (p. 44).

Whichever perspective one has, staff development and the improvement of schools and curriculum go hand in hand. Glickman (1986), who argues that the aim of staff development should be to improve teachers' ability to think, views curriculum development as a key aspect of this process. He believes that the intellectual engagement required in curriculum development demands that teachers not only know their content, but that they must also acquire curriculum planning skills. He recommends that curriculum development be conducted in heterogeneous groups composed of teachers of low, medium, and high abstract reasoning abilities. According to Glickman, the complexity of the curriculum development task should be matched to the abstract reasoning ability of the majority of teachers in the group.

Glatthorn (1987) describes three ways in which teachers can modify a district's curriculum guide. They may operationalize the district's curriculum guide by taking its lists of objectives and recommended teaching methods and turning them into a set of usable instructional guides. Or they may adapt the guide to students' special needs (e.g., remediation, learning style differences, etc.). Finally, teachers may enhance the guide by developing optional enrichment units. Glatthorn recommends that these activities be done in groups, believing that, in doing so, teachers will become more cohesive and will share ideas about teaching and learning in general, as well as on the development task at hand.

The involvement of teachers in school improvement processes, while similar in

its assumptions and process to curriculum development, finds its research and theory base in other sources. General approaches to school improvement come from the literature on change and innovation. For example, Loucks-Horsley and Hergert (1985) describe seven action steps in a school improvement process that are based in research on implementation of new practices in schools (Crandall & Loucks, 1983; Hall & Loucks, 1978; Louis & Rosenblum, 1981). The research on effective schools underpins other approaches to school improvement (Cohen, 1981). Finally, an approach to school improvement through staff development developed by Wood and his associates was derived from an analysis of effective staff development practices as represented in the research and in reports from educational practitioners (Thompson, 1982; Wood, 1989). The result is a five-stage RPTIM model (Readiness, Planning, Training, Implementation, and Maintenance) used widely in designing and implementing staff development efforts (Wood, Thompson, & Russell, 1981). As a result of involvement in such improvement efforts, schools (and the teachers within them) may develop new curriculum, change reporting procedures to parents, enhance communication within the faculty, and improve instruction, among many other topics.

Phases of activity. This model begins with the identification of a problem or need by an individual, a group of teachers (e.g., a grade-level team or a secondary department), a school faculty, or a district administrator. The need may be identified informally through discussion or a growing sense of dissatisfaction, through a more formal process such as brainstorming or the use of a standardized instrument (such as a school improvement survey or needs assessment), or through examination of student achievement or program evaluation data.

After a need has been identified, a response is formulated. This response may be determined informally or formally. In some cases, the necessary action may become immediately evident (e.g., the need for new lunchroom rules). At other times, teachers may need to brainstorm or search out alternatives, weigh them against a set of predetermined criteria, develop an ac-

tion plan, and determine evaluation procedures. This process may take several sessions to complete and require consultation with a larger group (e.g., the school-wide staff development committee may receive feedback on the tentative plan from the entire faculty).

Typically it becomes evident during this phase that specific knowledge or skills may be required to implement the plan. For instance, the faculty may decide that it wants to study several discipline systems before implementing the new lunchroom management system. The improvement of students' higher-order thinking may involve the selection of new textbooks, requiring that committee members better understand which features to look for in a textbook to support this goal. The development or selection of a new elementary science curriculum may require study of the latest research on science teaching and the examination of other curricula.

At this point the plan is implemented or the product developed. This process may take several days, several months, or several years. As a final step, the success of the program is assessed. If teachers are not satisfied with the results, they may return to an earlier phase (e.g., acquisition of knowledge or skills) and repeat the process.

Illustrations and outcomes. While teachers have long been involved in curriculum development, little research on the impact of these experiences on their professional development has been conducted. The research that has been done has assessed the impact of such involvement on areas other than professional development (for example, job satisfaction, costs, and commitment to the organization) (Kimpston & Rogers, 1987). Similarly, although the engagement of teachers in school improvement processes has increased in the last few years, little research has been conducted on the effects of that involvement on their professional development. There are, however, numerous examples that illustrate the various ways schools and districts have enhanced teacher growth by engaging them in the development/improvement process.

In the past few years, many state education agencies have supported implementation of state-initiated reforms through the encouragement (and sometimes mandat-

ing) of school improvement processes. For example, the Franklin County (Ohio) Department of Education used a staff development process to assist five school districts to meet mandated state goals (Scholl & McQueen, 1985). Teachers and administrators from the districts learned about the state requirements and developed goals and planning strategies for their districts. A major product of the program was a manual that included a synthesis of information and worksheets that could be used to guide small group activities in the five districts.

School districts have also initiated programs which involved teachers in improvement planning. In the Hammond (Indiana) Public Schools, decision making is school based (Casner-Lotto, 1988). School improvement committees (each composed of 15-20 members, including teachers, administrators, parents, students, and community members) received training in consensus building, brainstorming, creative problem solving, and group dynamics. After this training, each committee develops a "vision of excellence" for its school. As a result, schools have initiated projects in individualized learning, peer evaluation, cross-grade-level reading, and teacher coaching/mentoring.

Sparks, Nowakowski, Hall, Alec, and Imrick (1985) reported on two elementary school improvement projects that led to large gains on state reading tests. The first school's staff decided to review the reading curriculum and to investigate alternative instructional approaches. Teachers task-analyzed the six lowest-scoring objectives on the state test, studied effective instructional techniques, and participated in self-selected professional growth activities. In 2 years the number of students who scored above the average rose from 72 percent to 100 percent. In the second school, teachers adopted a new reading series, revised the kindergarten program, and created a booklet that included practice test items and effective instructional practices for improving student achievement. The percentage of students achieving the reading objectives increased almost 20 percent in 3 years.

The Jefferson County (Colorado) School District has long involved teachers in curriculum development and adaptation

(Jefferson County Public Schools, 1974). A cyclical process of needs assessment, curriculum objective statements, curriculum writing, pilot testing and evaluation, and district-wide implementation has been used on a regular basis in the major content areas. Teachers involved in writing and pilot test teams hone their skills as curriculum planners and developers and as masters of the new techniques that are incorporated into the curriculum (these have included such strategies as cooperative learning and individualized instruction). They also often take on the role of teacher trainers for the district-wide implementation that follows pilot and field tests (Loucks & Pratt, 1979).

E. J. Wilson High School in Spencerport (New York) is one of many across the country that has implemented elements of effective schools through a systematic school improvement process. Teachers in the school participate with building administrators on a Building Planning Committee which spearheads the achievement of "ideal practices" within the school through a seven-step process that engages the entire faculty in assessment, planning, implementation, and evaluation. As a result, the school climate and student achievement have improved, as have the knowledge, skills, and attitudes of the teachers involved. This school's outcome is representative of other schools that have implemented similar improvement processes (Kyle, 1985).

These state, school, and district-level efforts illustrate the wide variety of ways in which this model of staff development is being used. While the research and evaluation evidence regarding the impact of these processes on teacher knowledge and skills is not substantial, research does support many of the ingredients contained within these processes. These include commitment to the process by school and building administrators, which includes giving authority and resources to the team to pursue and then implement its agenda; development of knowledge and skills on the part of the teacher participants; adequate, quality time to meet, reflect, and develop; adequate resources to purchase materials, visit other sites, hire consultants to contribute to informed decision making; leadership that provides a vision, direction and guidance, but allows for significant decision

making on the part of the teacher participants; and integration of the effort into other improvement efforts and into other structures that influence teaching and learning in the school (Loucks-Horsley et al., 1987). When these factors are present, a limited amount of research data and a great deal of self-report data indicate clearly that the desired outcomes of staff development are achieved.

4. Training

In the minds of many educators, training is synonymous with staff development. Most teachers are accustomed to attending workshop-type sessions in which the presenter is the expert who establishes the content and flow of activities. Typically the training session is conducted with a clear set of objectives or learner outcomes. These outcomes frequently include awareness or knowledge (e.g., participants will be able to explain the five principles of cooperative learning) and skill development (e.g., participants will demonstrate the appropriate use of open-ended questions in a class discussion). Joyce and Showers (1988) cite changes in attitudes, transfer of training, and "executive control" (the appropriate and consistent use of new strategies in the classroom) as additional outcomes. It is the trainer's role to select activities (e.g., lecture, demonstration, role-playing, simulation, micro-teaching) that will aid teachers in achieving the desired outcomes.

Whatever the anticipated outcomes, the improvement of teachers' thinking is an important goal. According to Showers, Joyce, and Bennett (1987):

... the purpose of providing training in any practice is not simply to generate the external visible teaching "moves" that bring that practice to bear in the instructional setting but to generate the conditions that enable the practice to be selected and used appropriately and integratively. . . . a major, perhaps the major, dimension of teaching skill is cognitive in nature. (pp. 85-86)

Underlying assumptions. An assumption that undergirds the training model of staff development is that there are behaviors and techniques that are worthy of replication by teachers in the classroom. This assumption can certainly be sup-

ported by the large number of research-based effective teaching practices that have been identified and verified in the past 20 years (Sparks, 1983).

Another assumption underlying this model is that teachers can change their behaviors and learn to replicate behaviors in their classroom that were not previously in their repertoire. As Joyce and Showers (1983) point out, training is a powerful process for enhancing knowledge and skills. "It is plain from the research on training," they say, "that teachers can be wonderful learners. They can master just about any kind of teaching strategy or implement almost any technique as long as adequate training is provided" (p. 2).

Because of a high participant-to-trainer ratio, training is usually a cost-efficient means for teachers to acquire knowledge or skills. Many instructional skills require that teachers view a demonstration of their use to fully understand their implementation. Likewise, certain instructional techniques require for their classroom implementation that teachers have an opportunity to practice them with feedback from a skilled observer. Training may be the most efficient means for large numbers of teachers to view these demonstrations and to receive feedback as they practice.

Theoretical and research underpinnings. The theoretical and research underpinnings for the training model come from several sources, but the most recent and intensive research has been conducted by Joyce and Showers (1988). They have determined that, depending upon the desired outcomes, training might include exploration of theory, demonstration or modeling of a skill, practice of the skill under simulated conditions, feedback about performance, and coaching in the workplace. Their research indicates that this combination of components is necessary if the outcome is skill development.

In addition to those components identified by Joyce and Showers, Sparks (1983) cites the importance of discussion and peer observation as training activities. She notes that discussion is useful both when new concepts or techniques are presented and as a problem-solving tool after teachers have had an opportunity to try out new strategies in their classrooms. Training sessions that are spaced 1 or more weeks apart so that content can be "chunked" for

improved comprehension and so that teachers have opportunities for classroom practice and peer coaching are shown to be more effective than "one-shot" training (Loucks-Horsley et al., 1987; Sparks, 1983).

Sparks (1983), Wu (1987), and Wood and Kleine (1987) point out the value of teachers as trainers of their peers. Sparks indicates that teachers may learn as much from their peers as from "expert" trainers. She also argues that school districts can afford the type of small-group training that she recommends when peers are used rather than more expensive external consultants. In reviewing the research, Wood and Kleine found that teachers preferred their peers as trainers. Wu's review of the research also confirmed this, finding that when their peers are trainers, teachers feel more comfortable exchanging ideas, play a more active role in workshops, and report that they receive more practical suggestions. There is, however, evidence that indicates that expert trainers who have the critical qualities teachers value in their peers (e.g., a clear understanding of how a new practice works with real students in real classroom settings) can also be highly effective (Crandall, 1983).

Phases of activities. According to Joyce and Showers (1988), "Someone has to decide what will be the substance of the training, who will provide training, when and where the training will be held and for what duration" (p. 69). While training content, objectives, and schedules are often determined by administrators or by the trainer, Wood, McQuarrie, and Thompson's (1982) research-based model advocates involving participants in planning training programs. Participants serve on planning teams which assess needs (using appropriate sources of data), explore various research-based approaches, select content, determine goals and objectives, schedule training sessions, and monitor implementation of the program.

Joyce and Showers (1988) point out that there are specific "learning-to-learn" attitudes and skills that teachers possess or can develop that aid the training process. They cite persistence, acknowledgment of the transfer problem (the need for considerable practice of new skills in the classroom), teaching new behaviors to students, meeting the cognitive demands of innova-

tions (developing a "deep understanding" of new practices), the productive use of peers, and flexibility. The authors list several conditions of training sessions that foster these aptitudes and behaviors: adequate training, opportunities for collegial problem solving, norms that encourage experimentation, and organizational structures that support learning. Sparks' (1983) review of staff development research suggests that a diagnostic process (such as detailed profiles of teaching behaviors based upon classroom observations) may be an important first step in the training process.

After training, in-classroom assistance in the form of peer observation and coaching is critical to the transfer of more complex teaching skills (Joyce & Showers, 1988). The process of data gathering and analysis that accompanies most forms of peer observation is valuable to the observer as well as the observed teacher (Brandt, 1987; Sparks, 1986). A more thorough discussion of this topic can be found in the observation/assessment model described earlier in this article.

Illustrations and outcomes. The power of training to alter teachers' knowledge, attitudes, and instructional skills is well established. Its impact on teachers, however, depends upon its objectives and the quality of the training program. Joyce and Showers (1988) have determined that when all training components are present (theory, demonstration, practice, feedback, and coaching), an effect size of 2.71 exists for knowledge-level objectives, 1.25 for skill-level objectives, and 1.68 for transfer of training to the classroom. (The effect size describes the magnitude of gains from any given change in educational practice; the higher the effect size, the greater the magnitude of gain. For instance, an effect size of 1.0 indicates that the average teacher in the experimental group outperformed 84% of the teachers in the control group.) "We have concluded from these data," Joyce and Showers (1988) report, "that teachers can acquire new knowledge and skill and use it in their instructional practice when provided with adequate opportunities to learn" (p. 72). Coaching and peer observation research cited earlier in the observation/assessment model also supports the efficacy of training.

Wade (1985) found in her meta-analysis

of inservice teacher education research that training affected participants' learning by an effect size of .90 and their behavior by .60. An effect size of .37 was found for the impact of teacher training on student behavior. Wade also concluded that training groups composed of both elementary and secondary teachers achieved higher effect sizes than did those enrolling only elementary or only secondary teachers.

Gage (1984) traces the evolution of research on teaching from observational and descriptive studies to correlational studies to nine experiments that were designed to alter instructional practices. "The main conclusion of this body of research," Gage wrote, "is that, in eight out of the nine cases, inservice education was fairly effective — not with all teachers and not with all teaching practices but effective enough to change teachers and improve student achievement, or attitudes, or behavior" (p. 92).

Numerous specific illustrations of training programs are available that have demonstrated impact on teacher behavior and/or student learning. For instance, studies indicate that teachers who have been taught cooperative learning strategies for their classrooms have students who have higher achievement, display higher reasoning and greater critical thinking, have more positive attitudes toward the subject area, and like their fellow students better (Johnson, Johnson, Holubec, & Roy, 1984).

Good and Grouws (1987) describe a mathematics staff development program for elementary teachers. In this 10-session program teachers learned more about mathematics content and about instructional and management issues. As a result of the training, the researchers found changes in teachers' classroom practice and improved mathematics presentations. Student mathematics performance was also improved.

Kerman (1979) reports a 3-year study in which several hundred K-12 teachers were trained to improve their interactions with low-achieving students. The five-session training program included peer observation in the month interval between each session. The researchers found that low-achieving students in experimental classes made significant academic gains over their counterparts in control groups.

As the preceding discussion indicates, there is a much more substantial research literature on training than on the models presented earlier. Under the appropriate conditions, training has the potential for significantly changing teachers' beliefs, knowledge, behavior, and the performance of their students.

Rauth (1986) describes an American Federation of Teachers training program that brought research on teaching to its members. Teacher Research Linkers (TRLs) first determine which aspects of the research will be most valuable in their teaching. Between sessions they carry out implementation plans in their own classrooms. TRLs are then taught how to effectively share this research with their colleagues. A study of this program indicated that teachers made significant changes in their practice and that, in addition, their morale and collegiality increased dramatically.

Robbins and Wolfe (1987) discuss a 4-year staff development project designed to increase elementary students' engaged time and achievement. Evaluation of the training program documented steady improvement for 3 years in teachers' instructional skills, student engaged time, and student achievement in reading and math. While scores in all these areas dropped in the project's fourth and final year, Robbins and Wolfe argue that this decline was due to insufficient coaching and peer observation during that year.

As the preceding discussion indicates, there is a much more substantial research literature on training than on the models presented earlier. Under the appropriate conditions, training has the potential for significantly changing teachers' beliefs, knowledge, behavior, and the performance of their students.

5. Inquiry

Teacher inquiry can take different forms. A high school teacher wonders if an alteration in her lesson plan from her first period class will produce improved student understanding in second period. A brief written quiz given at the end of the class indicates that it did. A group of teachers gathers weekly after school for an hour or two at the teacher center to examine the research on ability grouping. Their findings will be shared with the district's curriculum council. Several elementary teachers study basic classroom research techniques, formulate research questions, gather and analyze data, and use their findings to improve instruction in their classrooms.

Teacher inquiry may be a solitary activity, be done in small groups, or be conducted by a school faculty. Its process may

be formal or informal. It may occur in a classroom, at a teacher center, or result from a university class. In this section teacher inquiry is explored as a staff development model.

Underlying assumptions. Inquiry reflects a basic belief in teachers' ability to formulate valid questions about their own practice and to pursue objective answers to those questions. Loucks-Horsley and her associates (1987) list three assumptions

One of the important tenets of the inquiry approach is that research is an important activity in which teachers should be engaged, although they rarely participate in it other than as "subjects."

about a teacher inquiry approach to staff development:

- Teachers are intelligent, inquiring individuals with legitimate expertise and important experience.
- Teachers are inclined to search for data to answer pressing questions and to reflect on the data to formulate solutions.
- Teachers will develop new understandings as they formulate their own questions and collect their own data to answer them.

The overarching assumption of the model is that

the most effective avenue for professional development is cooperative study by teachers themselves into problems and issues arising from their attempts to make their practice

consistent with their educational values. . . . [The approach] aims to give greater control over what is to count as valid educational knowledge to teachers. (Ingvarson, 1987, pp. 15, 17)

Theoretical and research underpinnings. The call for inquiry-oriented teachers is not new. Dewey (1933) wrote of the need for teachers to take "reflective action." Zeichner (1983) cites more than 30 years of advocacy for "teachers as action researchers," "teacher scholars," "teacher innovators," "self-monitoring teachers," and "teachers as participant observers."

More recently, various forms of inquiry have been advocated by a number of theorists and researchers. Tikunoff and Ward's (1983) model of interactive research and development promotes teacher inquiry into the questions they are asking through close work with researchers (who help with methodology) and staff developers (who help them create ways of sharing their results with others). Lieberman (1986) reports on a similar process in which teachers serving on collaborative teams pursued answers to school-wide rather than classroom problems. Watts (1985) discusses the role of collaborative research, classroom action research, and teacher support groups in encouraging teacher inquiry. Simmons and Sparks (1985) describe the use of action research to help teachers better relate research on teaching to their unique classrooms.

Glickman (1986) advocates action research in the form of quality circles, problem-solving groups, and school improvement projects as means to develop teacher thought. Cross (1987) proposes classroom research to help teachers evaluate the effectiveness of their own teaching. Glatthorn (1987) discusses action research by teams of teachers as a peer-centered option for promoting professional growth. Loucks-Horsley and her colleagues (1987) discuss teachers-as-researchers as a form of teacher development that helps narrow the gap between research and practice. Sparks and Simmons (1989) propose inquiry-oriented staff development as a means to enhance teachers' decision-making abilities.

One of the important tenets of the inquiry approach is that research is an important

activity in which teachers should be engaged, although they rarely participate in it other than as "subjects." Gable and Rogers (1987) "take the terror out of research" by describing ways in which it can be used as a staff development tool. They discuss both qualitative and quantitative methodology, providing specific strategies that teachers can use in their classrooms. They conclude by saying ". . . the desire to and ability to do research is an essential attribute of the professional teacher of the Eighties" (p. 695).

Phases of activity. While the inquiry model of staff development can take many forms, these forms have a number of elements in common. First, individuals or a group of teachers identify a problem of interest. Next, they explore ways of collecting data that may range from examining existing theoretical and research literature to gathering original classroom or school data. These data are then analyzed and interpreted by an individual or the group. Finally, changes are made, and new data are gathered and analyzed to determine the effects of the intervention.

This process can be adapted to the unique needs of a particular approach to inquiry. For instance, Hovda and Kyle (1984) provide a 10-step process for action research that progresses from identifying interested participants, through sharing several study ideas, to discussing findings, to considering having the study published or presented. Glatthorn (1987) describes a four-step process for action research. Collaborative research teams (a) identify a problem, (b) decide upon specific research questions to be investigated and methodology to be used, (c) carry out the research design, and (d) use the research to design an intervention to be implemented in the school.

Watts (1985) describes "reflective conversations" in which teachers carefully observe and thoughtfully consider a particular child or practice. Using a standard procedure, the group shares observations, reviews previous records and information, summarizes their findings, and makes recommendations. As a final step, the group reviews the process to assess how well it went, looks for gaps, and identifies ideas to repeat in future conversations.

Organizational support and/or technical assistance may be required throughout the

phases of an inquiry activity. Organizational support may take the form of structures such as teacher centers or study groups, or of resources such as released time or materials. Technical assistance may involve training in research methodologies, data-gathering techniques, and other processes that aid teachers in making sense of their experiences.

Illustrations and outcomes. The forms inquiry as a staff development model may

Teacher development in school districts does not take place in a vacuum. Its success is influenced in many ways by the district's organizational context.

take are limited only by the imagination. Simmons and Sparks (1985) describe a "Master of Arts in Classroom Teaching" degree designed to help teachers meet their individually identified improvement goals. Teachers in this program learn about educational research, identify and analyze classroom problems, pursue topics of professional interest, and improve their overall teaching ability. The authors report evidence of change in participant knowledge (e.g., concerning effective teaching-learning), thinking (e.g., enhanced problem-solving skills, increased cognitive complexity), and patterns of communication and collegiality.

Watts (1985) presents a number of ways in which teachers act as researchers. She discussed collaborative research in teacher centers funded by the Teachers' Center

Exchange (then located at the Far West Laboratory for Educational Research and Development) that was conducted in the late 1970s and early 1980s. Fourteen projects were funded in which teachers collaborated with researchers on topics of interest to the individual teachers' center. Watts also described ethnographic studies of classrooms conducted collaboratively by teachers and researchers. In addition, she provided examples of classroom action research and teachers' study groups as forms of inquiry. Watts concluded that these three approaches share several outcomes. First, as a result of learning more about research, teachers make more informed decisions about when and how to apply the research findings of others. Second, teachers experience more supportive and collegial relationships. And third, teaching improves as teachers learn more about it by becoming better able to look beyond the immediate, the individual, and the concrete.

The effects of the teacher inquiry model of staff development may reach beyond the classroom to the school. An example of school-wide impact comes from the report of a high school team convened to reflect on a lack of communication and support between teachers and administrators (Lieberman & Miller, 1984). As a result of working together to define the problem, learn each other's perspectives, gather evidence, and formulate solutions, teachers and administrators address important school problems collaboratively. Note that there is a substantial overlap between this kind of "school-based" inquiry and some of the school improvement processes discussed earlier in the model described as involvement in a development/improvement process.

Organizational Context

Teacher development in school districts does not take place in a vacuum. Its success is influenced in many ways by the district's organizational context (McLaughlin & Marsh, 1978; Sparks, 1983). Key organizational factors include school and district climate, leadership attitudes and behaviors, district policies and systems, and the involvement of participants.

While staff development fosters the professional growth of individuals, organiza-

tional development addresses the organization's responsibility to define and meet changing self improvement goals (Dillon-Peterson, 1981). Consequently, effective organizations have the capacity to continually renew themselves and solve problems. Within this context, individuals can grow.

In earlier sections of this article, five models of staff development were discussed that have solid foundations in research and/or practice, and are being used in increasingly robust forms throughout the country today. While each model requires somewhat different organizational supports to make it successful, it is also true that research points to a common set of attributes of the organizational context without which staff development can have only limited success (Loucks-Horsley et al., 1987). In organizations where staff development is most successful:

- Staff members have a common, coherent set of goals and objectives that they have helped formulate, reflecting high expectations of themselves and their students.
- Administrators exercise strong leadership by promoting a "norm of collegiality," minimizing status differences between themselves and their staff members, promoting informal communication, and reducing their own need to use formal controls to achieve coordination.
- Administrators and teachers place a high priority on staff development and continuous improvement.
- Administrators and teachers make use of a variety of formal and informal processes for monitoring progress toward goals, using them to identify obstacles to such progress and ways of overcoming these obstacles, rather than using them to make summary judgments regarding the "competence" of particular staff members (Conley & Bacharach, 1987).
- Knowledge, expertise, and resources, including time, are drawn on appropriately, yet liberally, to initiate and support the pursuit of staff development goals.

This section briefly highlights the research that supports these organizational attributes.

Organizational Climate

Little (1982) found that effective schools are characterized by norms of collegiality and experimentation. Simply put, teachers are more likely to persist in using new behaviors when they feel the support of colleagues and when they believe that professional risk taking (and its occasional failures) are encouraged. Fullan (1982) reports that the degree of change is strongly related to the extent to which teachers interact with each other and provide technical help to one another. "Teachers need to participate in skill-training workshops," Fullan writes, "but they also need to have one-to-one and group opportunities to receive and give help, and more simply to converse about the meaning of change" (p. 121).

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Joyce and Showers (1983) point out that "in a loose and disorganized social climate without clear goals, reticent teachers may actually subvert elements of the training process not only for themselves but also for others" (p. 31). While teacher commitment is desirable, it need not necessarily be present initially for the program to be successful. Miles (1983) found that teacher/administrator harmony was critical to the success of improvement efforts, but that it could develop over the course of an improvement effort. Initially, working relationships between teachers and administrators had to be clear and supportive enough so that most participants could "suspend disbelief," believing that the demands of change would be dealt with together (Crandall, 1983). In their study of school improvement efforts that relied

heavily on staff development for their success, both Miles and Crandall found that in projects where a mandated strategy caused some initial disharmony between teachers and administrators, the climate changed as the new program's positive impact on students became clear. When a new program was selected carefully and teachers received good training and support, most who were initially skeptical soon agreed with and were committed to the effort. Showers, Joyce, and Bennett (1987) support the position that, at least initially, teachers' ability to use a new practice in a competent way may be more important than commitment.

Few would disagree with the importance of a school and district climate that encourages experimentation and supports teachers to take risks, i.e., establishes readiness for change (Wood, Thompson, & Russell, 1981). Yet a supportive context consists of more than "good feelings." The quality of the recommended practices is also critical. Research conducted by Guskey (1986) and Loucks and Zacchei (1983) indicates that the new practices developed or chosen by or for teachers need to be effective ones — effective by virtue of evaluation results offered by the developer or by careful testing by the teachers who have developed them. These researchers found that only when teachers see that a new program or practice enhances the learning of their students will their beliefs and attitudes change in a significant way.

Leadership and Support

According to the Rand Change Agent Study (McLaughlin & Marsh, 1978) active support by principals and district administrators is critical to the success of any change effort. According to McLaughlin and Marsh (1978):

The Rand research sets the role of the principal as instructional leader in the context of strengthening the school improvement process through team building and problem solving in a "project-like" context. It suggests that principals need to give clear messages that teachers may take responsibility for their own professional growth. (p. 92)

Stallings and Mohlman (1981) determined that teachers improved most in staff

development programs where the principal supported them and was clear and consistent in communicating school policies. Likewise, Fielding and Schalock (1985) report a study in which principals' involvement in teachers' staff development produced longer-term changes than when principals were not involved.

In their discussion of factors that affect the application of innovations, Loucks and Zacchei (1983) wrote "... administrators in successful improvement sites take their leadership roles seriously and provide the direction needed to engage teachers in the new practices" (p. 30).

According to Huberman (1983), teachers' successful use of new skills often occurs when administrators exert strong and continuous pressure for implementation. He argues that "... administrators, both at the central office and building levels, have to go to center stage and stay there if school improvement efforts are to succeed" (p. 27). While administrator presence is important, administrators must also act as gate-keepers of change so that "innovation overload" can be avoided (Anderson & Odden, 1986).

While much research points to administrators as being key leaders in staff development and change, it is also true that others can take on leadership and support roles — and may in fact be better placed to do so. Research on school improvement indicates that a team approach can help orchestrate leadership and support "functions" which can be shared by administrators (building and district level), district coordinators or staff developers, teachers, and external trainers and consultants (Loucks-Horsley & Hergert, 1985). For example, Cox (1983) reports that while principals seem to play an important role in clarifying expectations and goals and stabilizing the school organization, central office coordinators, who often know more about a specific practice, can effectively coach teachers in their attempts to change their classroom behavior. Coordinated leadership can also help avoid situations such as a school's textbooks and curriculum not matching the instructional models teachers are being taught to use (Fielding & Schalock, 1985).

District Policies and Systems

Staff development activities occur within the context of a school district's staff

development program. According to Ellis (1988), a comprehensive staff development program includes a philosophy, goals, allocation of resources, and coordination. The philosophy spells out beliefs that guide the program. District, school, and individual goals (and their accompanying action plans) provide direction to staff development efforts. Resources need to be allocated at the district, school, and individual levels so that these goals have a reasonable chance of being achieved. Staff development programs need to be coordinated by individuals who have an assigned responsibility for this area. Ellis also supports the use of a district-level staff development committee to aid in coordination of programs.

While much research points to administrators as being key leaders in staff development and change, it is also true that others can take on leadership and support roles — and may in fact be better placed to do so.

The selection, incorporation, or combination of the models of staff development described in this article are the responsibility of the district's staff development structure. Decisions about their use need to match the intended outcomes if they are to be effective (Levine & Broude, 1989), but these decisions are also influenced by state and/or community initiatives aimed at the improvement of schools and/or teaching (Anderson & Odden, 1986).

Participant Involvement

Research clearly indicates that involving participants in key decisions about staff development is necessary for a program to have its greatest impact. According to Lieberman and Miller (1986), a supportive context for staff development requires both a "top-down" and "bottom-up" approach.

The top-down component sets a general direction for the district or school and communicates expectations regarding performance. The bottom-up processes involve teachers in establishing goals and designing appropriate staff development activities.

The establishment of common goals is important to the success of staff development efforts (Ward & Tikunoff, 1981). Odden and Anderson's (1986) research indicates that a clearly defined process of data collection, shared diagnosis, and identification of solutions to problems must be employed during the planning phase. Collaboration, from initial planning through implementation and institutionalization, is a key process in determining these goals and in influencing lasting change (Lambert, 1984; McLaughlin & Marsh, 1978; Wood, Thompson, & Russell, 1981).

Lortie (1986) argues that when teachers perceive that they can participate in important school-level decisions, the relationship between the extra efforts required by school improvement and the benefits of these efforts becomes clearer. Following this argument, he recommends that schools be given relatively little detailed supervision, but be monitored instead for results based on explicit criteria.

Others report that, when teachers cannot be involved in initial decisions regarding staff development (e.g., when it is mandated by state legislation or when it supports the use of district-wide curriculum), their involvement in decisions about the "hows" and "whens" of implementation can be important to success. Furthermore, teachers' involvement in developing curriculum and as trainers for staff development programs can contribute in important ways to the success of an effort (Loucks & Pratt, 1979).

Odden and Anderson (1986) capture the reciprocal relationship between organization and individual development in this discussion of their research:

When instructional strategies, which aim to improve the skills of individuals, were successful, they had significant effects on schools as organizations. When school strategies, which aim to improve schools as organizations, were successful, they had significant impacts on individuals. (p. 585)

Staff development both influences and is influenced by the organizational context in which it takes place. The impact of the staff development models that have been discussed depends not only upon their individual or blended use, but upon the features of the organization in which they are used.

The importance of paying attention to the context of staff development is underscored by Fullan (1982). He responds to educators who say that they cannot provide the elements required to support change (e.g., supportive principals, a 2- or 3-year time period for implementation):

We don't expect much implementation to occur . . . I say this not because I am a cynic but because it is wrong to let hopes blind us to the actual obstacles to change. If these obstacles are ignored, the experience with implementation can be harmful to the adults and children directly involved — more harmful than if nothing had been done. (p. 103)

Conclusion

Staff development is a relatively young "science" within education. In many ways the current knowledge base in staff development is similar to what was known about teaching in the early 1970s. During the 1970s and early 1980s research on teaching advanced from descriptive to correlational to experimental (Gage, 1984). With the exception of research on training, much of the staff development literature is theoretical and descriptive rather than experimental. The remaining two sections describe what can be said with some confidence about the research base for the staff development models and what remains to be learned.

What Can Be Said with Confidence

Staff development possesses a useful "craft knowledge" that guides the field. This craft knowledge includes ways to organize, structure, and deliver staff development programs (Caldwell, 1989). It has been disseminated in the past decade through publications such as *The Journal of Staff Development*, *Educational Leadership*, and *Phi Delta Kappan*, and through thousands of presentations at workshops and conventions. As a result, in the past 20 years hundreds of staff development programs have been established in urban, suburban, and rural school districts throughout the United States and Canada. This craft knowledge serves another useful purpose: It can guide researchers in asking far better questions than they could have asked a decade ago.

Of the five models discussed in this article, the research on training is the most robust. It is the most widely used form of staff development and the most thoroughly investigated. As a result, it is possible to say with some confidence which training elements are required to promote the attainment of specific outcomes. Likewise, research on coaching has demonstrated the importance of in-classroom assistance to teachers (by an "expert" or by a peer) for the transfer of training to the classroom.

The consensus of "expert opinion" is that school improvement is a systemic process (Fullan, 1982). This ecological approach recognizes that changes in one part of a system influence the other parts. Consequently, staff development both influences and is influenced by the organizational context in which it takes place. The impact of the staff development models that have been discussed depends not only upon their individual or blended use, but upon the features of the organization in which they are used.

While this appears to relate to the "art" of making staff development work (i.e., the judgment with which one combines and juggles the various organizational interactions), there is also much "science" that can be drawn from when it comes to the organizational supports necessary for effective staff development. Study after study confirms the necessity of:

- Schools possessing norms that support collegiality and experimentation
- District and building administrators who work with staff to clarify goals and expectations, and actively commit to and support teachers' efforts to change their practice
- Efforts that are strongly focused on changes in curricular, instructional, and classroom management practices with improved student learning as the goal
- Adequate, appropriate staff development experiences with follow-up assistance that continues long enough for new behaviors to be incorporated into ongoing practice

Interestingly enough, it appears that these factors apply to a wide variety of school improvement and staff development efforts. While there are little hard research data on some of the models discussed above (see next section), most if not

all of these factors will certainly persist as being important, regardless of what is learned about other models.

What We Need to Learn More About

While the work of staff developers during the past decade has been grounded in theory and research from various disciplines (e.g., adult learning, organization development, training), the scientific base of their own practice (with the exception of training and coaching) is quite thin. Unfortunately, the systematic study of some of the models discussed earlier is difficult because their use is not widespread or because they have been implemented only recently as part of comprehensive staff development programs. Listed below are areas for further study.

1. **We need research to determine the potency of the models described above (with the exception of training).** We need to learn which models are most effective for which outcomes with which teachers. For instance, we might ask: How effective is individually-guided staff development for knowledge level outcomes for self-directed experienced teachers? Or: How effective is an inquiry approach in helping beginning teachers learn their craft?

2. **We need a better understanding of the impact on student learning of the four non-training staff development models.** Do non-training models alter teacher knowledge or skills in a way that improves student learning?

3. **We need to know more about the impact on teachers of blending the models described above in a comprehensive staff development program.** How are teachers' attitudes, knowledge, and skills altered when they choose among and blend various models as the means of reaching one or more "growth" goals? For instance, what would be the result if a teacher blended individually-guided staff development (e.g., reading research on tracking), observation/assessment (e.g., peer observation), and training (e.g., in cooperative learning) as means to alter classroom practices that are viewed as disadvantageous to a sub-group of students?

4. **We need a systemic view of comprehensive staff development at the district level.** Most districts provide a variety of staff development opportunities to teachers. Some purposely support individual, school-based, and district-based activities.

We need descriptive studies of what these programs look like, both from the overall, coordination point of view, and from the individual teacher point of view. We need to know: How are goals set and coordinated? How are resources allocated? How equitable are opportunities for individual teachers? How do different contextual factors (e.g., resources, state mandates) influence success?

5. **We need to understand more about the relative costs of different staff development models and combinations of the models.** Moore and Hyde (1978, 1979, 1981) have conducted some useful analyses of how many school district resources actually go for staff development purposes. But more micro-analyses would be useful to understand the cost-effectiveness of relatively labor-intensive models (e.g., coaching) versus those that rely only on the activity of a single teacher (e.g., individually-guided staff development).

6. **Finally, we need to look at staff development as it contributes to teacher professionalism and teacher leadership.** Many believe that teacher professionalism and leadership must characterize our education system in the future if that system is to survive. Yet there are as many different definitions of the terms as there are ideas of how to implement them. One role of staff development research is to help identify and clarify the various meanings given to these concepts. We then need descriptive studies of staff development's contributions to these efforts, with special attention to how these efforts influence the conduct of staff development.

It is possible that future research may contradict current craft knowledge (this, for example, has occurred with the learning that attitude change does not always have to precede behavior change), or, as is likely, future research will support current practice. Many questions about effective staff development remain unanswered. The need is great for well-designed, long-term studies of school improvement efforts that are based on staff development. The field of staff development seeks a solid base that moves beyond description and advocacy to a better understanding of those factors that support and improve classroom practice.

Reference Note

This article was adapted from "Models of Staff Development," in W. Robert Houston (Ed.), *Handbook of Research on Teacher Education*. New York: Macmillan, 1990.

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EFFECTIVE STAFF DEVELOPMENT FOR URBAN SCHOOL IMPROVEMENT

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Paper prepared for the American Educational Research Association
meetings, San Francisco, March 27-31, 1989

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EFFECTIVE STAFF DEVELOPMENT FOR URBAN SCHOOL IMPROVEMENT

While there is an abundance of literature on school change and the role that staff development plays in this process (e.g., Berman & McLaughlin, 1978; Cuban, 1984; Little, 1981; Pink, 1986a; Sarason, 1971) there is little research literature focusing directly on the implementation and outcomes of staff development (e.g., Huberman, 1981; Pink, 1984a; Showers, 1983; Stallings, 1980;). A reading of journals devoted to staff development, for example, reveals that the majority of manuscripts (if they present data) present data that are first-person, anecdotal, and frequently not grounded in theory.

As a consequence, most school districts continue to develop (or inherit from state depts.) staff development plans that incorporate top-down information dissemination which reduces what is a complex human and organizational process to little more than a recipe prescription for instructional strategies and school organization. Moreover, only a small proportion of a districts' operational budget is set aside for staff development. This is not to say that there isn't literature which argues for planned, intensive, and long term staff development for teachers and administrators (e.g., Fullan, 1985; Stevenson, 1987). To date, however, this literature is pushing for a model not yet in place in the majority of school districts.

I suggest that what we need are carefully crafted studies of the conceptualization, implementation, and outcomes of school improvement projects. Such studies will illustrate (1) the range of ways in which staff development can be done to maximize the effectiveness of the interventions, and (2) the importance of local context in dictating how the staff development component of the interventions must be tailored to address specific school needs. It is evident that the "one size fits all" approach to school improvement leads to frustration, yet we lack good documentation which illustrates how to do it well.

In this paper I want to present four examples of school improvement projects in urban schools and briefly highlight the staff development component in each project. Then, I will detail the major barriers to program effectiveness in each setting. Finally, I will explore the similarities across these four projects in urban school districts that function to (1) limit the development of effective staff development programs, and therefore (2) significantly reduce the impact of the interventions on the lives of inner city youth.

Several kinds of formative and summative data were collected within each of these four projects. Questionnaire data were collected from students, teachers, principals, coordinators and central office personnel. Interviews where also

conducted with this same range of actors. Observations were made in classrooms, planning meetings, staff development sessions and the like, while school level and central office documents were also reviewed. Finally, students achievement data of various kinds were analyzed (a more complete treatment of these data can be found in the primary citations for each project).

I will argue in this paper that conceptually "poor" staff development models (models which ignor, for example, both adult learning theory and contextual factors in program implementation) are likely to have a limited impact whatever intervention they support, while conceptually "good" staff development models are also likely to have a limited impact without orchestrated changes in the organizational, workplace conditions, instructional, and curricula domains of schools.

CASE ONE: CHANGE FACILITATORS

Realizing that elementary school principals could not carry the task of instructional improvement single-handedly, an urban school district hired an Instructional Assistant (IA) for each of fifty elementary schools (Pink, 1984a). The role of the IA was conceptualized as providing support to teachers to improve instruction. IA's were to work with the

principal, but be free of administrative duties and regular teaching assignments, i.e., they were not assistant principals, or substitute teachers.

The potential impact on school improvement is high from an IA free to provide technical assistance, on site, to teachers on an as needed basis. However, the skills of the IA's varied greatly. Throughout the first year, IA's attended monthly staff development sessions covering six key components of instructional leadership; (1) knowledge of the curriculum, (2) knowledge of effective instructional practices, (3) knowledge of strategies for enhancing expectations, (4) collaboration skills, (5) facilitation skills, and (6) monitoring and assessment skills. In addition, IA's engaged in monthly small group cluster meetings designed to explore the complexities of their role in a school defined as a complex organization, and strengthen their understanding of an instructional improvement process which required them to model behaviors and provide feedback to teachers as they in turn practiced these new behaviors.

The first year of the program was a qualified success. While the skills of the IA's improved, nevertheless they remained somewhat varied (this difference in performance was exacerbated as their ranks were thinned following several promotions to principal, and as subsequent hires were taken from a less skilled pool of applicants). However, the

program was directed by the director of staff development, was well funded from staff development funds, and enjoyed the attention of the superintendent and several other key administrators who sat on the districtwide IA steering committee.

In the second year of the program, things began to fall apart. As the program took a back seat to emergent activities in the district seen as more pressing, the previous levels of interest, funding and staffing were greatly reduced. As a result, the major thrust of the staff development component shifted in focus from the six leadership components listed earlier, to a series of short monthly sessions on the theory and implementation of the district's new plan for curriculum alignment in reading. The availability of central office staff who might provide technical assistance of IA's was also greatly reduced. Thus, during this second year, the IA program received little guidance from its director, as well as drastically reduced levels of support and staff development. Contributing to this fall from grace, were the resignations of the superintendent and the director of staff development.

Ironically, while the IA program was losing its impact in elementary schools because of insufficient leadership and resources, plans were being developed to expand the program into the secondary schools. In the following academic year

an additional eighteen coordinators of instruction were hired for the secondary schools: a name change, from IA to CI, was considered important to differentiate between elementary and secondary personnel. However, no additional resources, beyond salary, were budgeted to support these new positions. Beginning year three, (1) no central office administrator had been assigned responsibility for either the IA or the CI programs, (2) no staff development was planned for IA's or CI's (the staff development unit had been disbanded the previous school year following the resignation of the director of staff development), and (3) no unit in the district was identified as responsible for monitoring either the implementation of the IA or CI program, or the impact of the IA's and CI's at the school level.

Barriers to Effectiveness

Several factors, working together, combined to reduce the effectiveness of the change facilitator program:

- (1) The district had an inadequate model for effecting school change via the Instructional Assistant. The initial staff development in six program components was subsequently reduced to a single component (reading alignment) and the district failed to invest in assisting the building leadership cadre learn how to function as a unit in decision making and program implementation.
- (2) IA's were hired as replacements (to provide one for each building) from a significantly reduced talent pool. The result was that the effectiveness of IA's varied widely, yet beginning in year two there was no mechanism in place to help them improve their skills.
- (3) The declining attention and direction from the

central office resulted in the loss of the intellectual content for the program. Beginning in year two, the program lacked both a focus and a direction. Without a realistic model for school change the district misread what it takes to mount and institutionalize a school improvement intervention in a large number of very different schools. The loss of facilitators at cluster level meetings, for example, frequently reduced these meetings to "gripe sessions" about the impossibility of doing an effective job.

(4) The inadequate funding for this project resulted in the loss of momentum for the project from years one to two. Extensive formative and summative data were collected in year one. These were helpful for informing both the Steering Committee and the IA's of the current status of the project. In year two, however, the data gathering was much more modest and restricted to summative data.

(5) The highly centralized decision-making structure of the system left little room for real innovation at the building level (even though a school site planning model was being developed). Thus, the expectations (and support for realizing these expectations) in year one, were replaced by low expectations (and support for realizing these expectations) in year two. IA's and their principals were careful to be responsive to the dictates of the central office.

CASE TWO: AN EFFECTIVE SCHOOLS PROJECT

An urban district launched a pilot effective schools project in six volunteering, low achieving, Chapter 1 elementary schools (Pink, 1984b and 1985; Pink and Wallace, 1984). Over several months district personnel in collaboration with university, research, educational laboratory, and state department consultants, developed six program components based on the research in several domains (curriculum alignment, instruction, leadership, expectations, climate, and parental involvement). The effective schools model which evolved from this intensive planning activity required the

staff of each school to work together to develop a yearly site improvement plan, which should contain activities to address each of the six program components. The effective schools project was directed by the director of special projects and enjoyed the attention of several staff development and reading personnel who provided regular workshop sessions on each of the six components.

During its first year, the program had a high visibility in the district. The superintendent attended some planning meetings, the yearly project retreat, and some of the monthly meetings of the steering committee. His presence emphasized his commitment to school improvement through the program activities. Also, the director of staff development gave the project daily attention, and there was sufficient flexibility in assigning staff development personnel to provide technical assistance when requested by the schools. In addition, building leaders were engaged in a series of staff development sessions designed to develop leadership skills.

Despite this strong beginning for the small pilot project, the evaluation of the project indicated a need to: (1) appoint a full time project director, together with staff assigned to the project to assist schools facilitate the implementation of their site plans, (2) provide more focused staff development for teachers on content and collaboration skills, (3) provide more focused staff development in

leadership, especially for principals and lead teachers, and (4) develop a stronger system for gathering formative data to assist schools fine-tune their improvement activities. The district did not follow through with these recommendations. In the second year of the program, things deteriorated rather than improved.

Responsibility for the program was downgraded from a director to a coordinator of special programs. The coordinator had neither the line authority, nor the expertise of the previous director. Problems also surfaced during this second year about how to provide additional staff development to teachers and administrators that didn't require extensive after school or Saturday meetings (neither of which were popular with school personnel). No resolution of this issue evolved. Consequently, teachers and administrators actually received less staff development than in the previous year. Also, because limited additional funds were allocated to the project, no additional staff could be hired to gather formative data about the program, or to provide technical support to schools. As a result of these problems, schools were being asked to engage in a significant school improvement program without adequate support or leadership.

As the troubled second year of the effective schools pilot drew to a close, the school district was scrambling to implement a desegregation court order that included an

expansion of the effective schools elementary project into twelve additional schools. Curiously, these additional elementary schools were identified as the lowest scoring schools in the district when ranked on reading and mathematics achievement scores. This violated the concept of volunteerism so central to the original pilot. Even more problematic, however, was the low level of funding provided by the court order (a reflection of what was requested by the district to support the program). While the order mandated the program, the district is currently attempting to implement an eighteen school effective schools project with the same level of funding and support that proved inadequate for the six school program. The result has been a reduction in the focus of the program from the six component areas detailed earlier, to activities to improve reading and mathematics achievement.

Barriers to Effectiveness

Several factors, working together, combined to reduce the effectiveness of the effective schools project:

- (1) Leadership for the project declined at the central office level. Emergent issues drew attention away from the project, while the project coordinator had little authority within the organization.
- (2) The project was severely underfunded. Not only does this reflect an inadequate understanding of the realities of crafting school improvement, but it doomed the project from its inception.

(3) The staff development model in use underestimated the level of effort required to (a) support the instructional change of more than 100 teachers, (b) develop leadership skills for 18 principals and lead teachers, and (c) collect school level formative and summative data. In short, the lack of a long-term investment in the professional development of the teachers and administrators in these schools seriously undermined the effective schools intervention.

(4) The effective schools project attempted to improve schools without considering what organizational features of schools need to be changed. Teachers, for example, received no additional rewards for investing heavily in the project. Changes to prior practice were all conceptualized within existing union guidelines. The result was that marginal rather than fundamental changes were proposed when fundamental changes were essential. Moreover, the district was simply unable to talk about the kinds of fundamental changes that were needed even when faced with data indicating that the existing program was not working.

(5) Despite theoretical support for the development of site specific school improvement plans, in practice the central office managed the project in a very centralized top - down fashion. The result was that all the schools proposed rather traditional school improvement activities -- this became even more apparent in subsequent years when the focus for the program was narrowed to improving achievement in reading and mathematics.

CASE THREE: A SCHOOL-WITHIN-A-SCHOOL (SWAS) PROJECT

Late in the 1983-84 school year several faculty from a school of education took a proposal for a SWAS intervention for low achieving secondary students to the superintendent of an urban school district (Pink, 1986b). Following a series of meetings between the university faculty and the central office staff of the district, senior high principals were asked to volunteer their schools to pilot the SWAS model.

Four of nine principals volunteered for the 1984-85 school year. The project involved (1) the identification of low-achieving students entering their first year of high school (ninth grade), (2) the selection of four teachers (English, mathematics, reading and social studies) in each school who would team to teach an integrated curriculum that (3) emphasized comprehension to low-achieving students in small classes, in (4) a section of the school building designated for SWAS students only. The district provided some additional funding to develop materials and provide released time for staff development. The local university provided technical assistance during the pilot year. Since the primary focus of the project was on reading comprehension a new test developed by the College Board, the Degrees of Reading Power (DRP), was also piloted. The DRP was used to (1) measure each student's level of comprehending text, and (2) determine the comprehension level of basal text and other supplemental instructional material. This latter activity is seen as important so that a better match could be between the ability of the students and the material used by the teacher for instruction.

An evaluation of the SWAS pilot, prepared by the district's Department of Research and Evaluation, pointed up a series of problems with factors such as student isolation and self-esteem (students didn't like being segregated from non-program peers, many of whom they said treated them "like

special education students"), teacher stress ("teaching low-achieving "problem" students is very demanding"), inadequate coordination and supervision (the central office was providing little guidance, and teachers were receiving no supervision or feedback about their classroom performance), and insufficient teacher and administrator training (beyond the initial orientation in the summer, project participants were not engaged in an effective staff development program). The evaluation also reported, however, less student absenteeism and drop out, fewer disciplinary referrals, and the fact that the vast majority of students and teachers enjoyed being in the program.

Prior to the publication of these evaluation data (August 1985), the school district designated the SWAS model as the "major reform of secondary schools in the district", and mandated that every secondary school (nine high schools and seven junior high schools) would have a SWAS program for the 1985-1986 school year.

Some planning for implementing SWAS districtwide was done early in the summer of 1985. Each school was given a modest additional budget to manage the project (\$5,000.00). Principals were charged to identify their team of four SWAS teachers. While volunteers were preferred, several principals fell back on conscription. Teachers who were available (on somewhat short notice) in late summer attended

a week-long workshop in preparation for planning to teach in the SWAS program. The workshop was conducted by staff from the pilot schools and several university faculty. The philosophy of the program was explained, as were a series of instructional techniques designed to (1) focus on the development of comprehension across the four curriculum areas in the program, and (2) engage low-achieving youth in successful learning experiences (e.g., cooperative learning: Slavin 1983). Each school had a site coordinator for the SWAS program who was to be released half time. A program coordinator for SWAS, to be located in the central office, was hired from a school that was in the original pilot project.

Students were identified for the program by using a combination of their DRP score, their Iowa Tests of Basic Skills (ITBS) score in reading (a norm-referenced standardized achievement test) and teacher recommendations. Approximately 100 of the lowest achieving 'at risk' students were identified at each of the district's junior and senior high schools.

Monthly staff developmental meetings for all the SWAS teachers were held. Each school also held a weekly staff development meeting. The primary focus of these meetings was on organizational factors (e.g., how to group students and how to follow-up absenteeism). Little time was spent

discussing instructional strategies or on the development of instructional materials . While the individual schools had almost complete freedom to develop the SWAS program (within the general guidelines discussed at the summer workshops; few written guidelines existed), such development never occurred. The program in each school was remarkably similar.

Barriers to Effectiveness

Several factors, working together, combined to reduce the effectiveness of the change facilitator program:

(1) The teachers and coordinators had received little orientation and subsequent staff development in either the theory or practice of the program. While a majority of teachers thought the summer orientation was a worthwhile experience, they also saw it as insufficient to prepare them to teach in the SWAS program. Compounding this general lack of knowledge about what might work best for "at-risk" students was the fact that several of the conscripted teachers did not want to be in the program.

(2) The district coordinator of the SWAS program made contact with each school on an invitation basis only. The logic used was that "when they (the schools) are ready to move forward they will call me." The result, however, was that schools didn't call because they didn't want to open themselves up to the scrutiny of the central office staff.

(3) The program lacked any direct coordination from the superintendent's office. The associate superintendent with line authority for the SWAS program was so overburdened with responsibilities (because of a reassignment of staff he was responsible for all the fifty elementary schools, as well as the sixteen secondary schools in the district) that he was unable to give the project the leadership it required. This lack of attention from the superintendent's office, coupled with the fact that the SWAS coordinator was newly promoted out of the teacher ranks and lacked both skill,

formal training, and experience in coordinating a multi-site project resulted in a leadership void in the SWAS program.

(4) No attention was paid to the important organizational differences between junior high and senior high buildings that would affect the implementation of the SWAS program. It was not until Christmas, for example, that a person was hired to coordinate the program in the junior high schools. Until then, one district coordinator had been working in all eight high schools and seven junior high schools.

(5) No provision was made to provide SWAS teachers with systematic feedback about their classroom performance. Site coordinators were expected to visit classrooms to make observations and provide feedback to teachers. In some schools, however, coordinators did not receive the half time assignment to coordinate the program and were thus unable to visit classrooms. Moreover, no site coordinator received any staff development in observational techniques or clinical supervision strategies. As a result of the individual coordinators' lack of time and skill, together with the fact that the two project coordinators were not visiting classrooms (unless asked), teachers did not receive any systemic feedback about their teaching.

(6) There was an over-dependency on central office directives. Rather than rushing in to fill the leadership void and create a SWAS program that was tailored to the specific school site, program personnel waited for central office directions. The result of a long history of centralized decision-making is that building leaders have internalized the dangers of "getting out ahead of the crowd." Thus, because directions were not given the program was not fully implemented at any site.

(7) The district had an unrealistic perspective on (a) the time required for teachers to learn about and implement the SWAS program, and (b) the changes needed in the school day for teachers to be effective in the SWAS program. The staff development model in use ignored the importance of providing SWAS teachers long-term and intensive support to refine their instructional skills and develop new materials to teach at-risk students. Moreover, SWAS teachers were required to implement the program while receiving the same one class per day release as every other teacher in the schools. i.e., they were expected to (1) plan for their own instruction, (2) meet with students individually, and (3) work with their team members to develop instructional materials and coordinate the program all

in one period per day. Because of this miscalculation, the SWAS program failed to flourish.

CASE FOUR: IMPROVING MATHEMATICS INSTRUCTION

In 1982 a superintendent new to a large urban school invited a local university to form a partnership with two previously selected elementary schools (Zawojewski, in press). Faculty from the mathematics department at the university met with teachers and administrators from the two schools and subsequently designed a staff development program that had three major components: (a) instructional strategies for teaching mathematics, (b) consumable mathematics units, and (c) conceptually-based screening tests that would aid in developing classroom profiles of the concepts learned.

During the first year of the program grade level groups of four and five teachers met monthly for one and half hours with a university faculty member. Substitutes were used to cover classes as teachers rotated into the staff development sessions. All the sessions were held in one of the two buildings: there wasn't a suitable place to meet in the other building. In the second year several problems began to surface. Not only were teachers becoming more reluctant to leave their classrooms (to attend the staff development sessions, they argued, put their students and themselves at-risk because poor substitutes couldn't cover the required

material), but they were finding it increasingly difficult to integrate the material presented in the staff development sessions into their own instruction. Moreover, the two principals indicated that they were unable to correct the problem with poor or missing substitutes. As a result of these problems several sessions were conducted with three or fewer teachers, or cancelled.

This required the development of a revised staff development strategy. The new plan incorporated 20 minute before school staff development sessions for selected grade levels, followed by a variety of follow-up activities (e.g., conferencing, demonstration lessons, co-teaching, observation, and coaching.)

Again, this proved effective for two or three months. Then a different series of problems emerged: (1) teachers lost interest in attending the pre-school sessions (they said "the timing was bad" and they need that time to collect themselves for the day), (2) the requests for in-class consultation dried-up, (3) the consumable math units housed in classrooms were mistreated and frequently incomplete, and (4) teachers' discontinued the screening tests because they were perceived as too time consuming to administer and covered complex material they couldn't find time to teach.

Significant teacher turnover (only 2 of 10 in one school and

6 of 20 at the second school remained throughout the life of the project) coupled with apathy toward the project slowly became insurmountable. What was begun as a schoolwide focus on improving mathematics instruction was slowly reduced to a program where a very few teachers in each school were collaborating with the university faculty to improve their own instruction in mathematics.

It would seem that while many teachers learned some mathematics and began to see mathematics as more than a collection of independent skills to memorize, few teachers actually tried the methods presented in the staff development sessions in their own classrooms.

Barriers to Effectiveness

Several factors, working together, combined to reduce the effectiveness of the effective schools project:

- (1) Lack of interest in the project from the local district office resulted in principal disinterest. This situation created an environment for the development of teacher disinterest.
- (2) The staff development model in use didn't permit sufficient discussion and follow-up activities. The union contract restricted the use of additional activities without the payment of stipends. Also, not being in each school was a problem, as was the lack of time for follow-up activities in the classroom.
- (3) The availability (and quality) of substitute teachers was a constant problem. Without a system of securing substitutes at predetermined times it became impossible to deliver the program.

(4) The high turn over of teachers from year to year, together with the high absenteeism rates in schools prevented program continuity. Without resolving these issues program improvement becomes highly problematic.

(5) The funding level for the project (this was a grant funded by a private foundation) was insufficient to support the level of staff development required. More time was required to (a) present basic mathematics concepts than was originally planned for, and (b) provide teachers more one-on-one consultations. The fact that the district was unable to fill this void when it was recognized prevented the project from having a greater impact on mathematics instruction.

SOME CONCLUDING COMMENTS ABOUT IMPROVING URBAN SCHOOLS

An analysis of data collected in these four school improvement projects reveals a number of similar factors that inhibit the effectiveness of the interventions. We can conclude, therefore, that school districts need to give particular attention to these factors, as they conceptualize, implement, and evaluate interventions if they wish to maximize the effectiveness of their school improvement efforts.

In pointing up these similarities, I do not want to suggest that there is a "single best" solution to the problems confronting those engaging in school improvement. Rather, what emerges from this analysis is strong support for (1) decentralizing decision-making about the content and form of school improvement to the school and classroom levels, and (2) the need to provide intensive and long-term programmatic

support for teachers and administrators that is sensitive to the contextualized needs of both the schools and the classrooms.

Twelve factors common to all four projects emerge as barriers to program effectiveness. Because they appear to be interactive, I do not claim that they appear here in order of importance:

(1) An inadequate theory about school change in all four cases resulted in faulty conceptualization and implementation of the interventions. In all cases, for example, too little time was budgeted for teachers to plan for and learn about the project and become proficient in new skills and practices. Similarly, in all cases there was too little investment in the professional development of the building leadership. Without a sound and well articulated theory about change the success of the intervention is seriously compromised.

(2) Districts are vulnerable to faddism in their desire for quick-fix solutions to mounting problems. This is illustrated by the fact that projects have a short shelf life in urban schools. The push for results, especially raising student test scores, frequently means that it is rare that a project is given enough time to prove its effectiveness or ineffectiveness. In the case of the IA, effective schools and SWAS interventions the programs were expanded before there was time to figure out how to do them right. In the case of the mathematics project, modifications were constantly being made to meet emergent problems. Districts must stay with an intervention long enough to implement it fully and understand what impact it is having.

(3) A lack of central office support for an intervention frequently results in a kiss of death. Prior to the institutionalization of a program, the program needs the sanctioning and visibility that can only be provided by key individuals at the central office. In all four of the cases outlined above, the absence of vigorous and sustained support from the central office was interpreted as a signal that something else is important. Energy is quickly shifted to those activities most valued by the influential

actors in the central office. Districts must create an effective support system at the central office level for each program intervention.

(4) Underfunding a project invariably results in problems that cannot be addressed until the next fiscal year. In each of the four cases cited in this paper, the underfunding resulted in far too few support staff to implement the interventions. In no case were adequate adjustments made either during the school year or in the following school year. School districts must make realistic assessments of the costs of doing what is proposed. To do less will jeopardize both the implementation and the impact of the intervention.

(5) Attempting to manage school improvement interventions from the central office is problematic in large urban districts. Not only does such centralized control often result in an over-dependence on central office mandates, but it also narrows the range within which schools can be responsive. Centralized decision-making fuels a management model that emphasizes compliance, which in turn leaves little room for innovation at the school level. Districts need to support the involvement of teachers and administrators at the school level in collaborative decision-making about site specific school improvement interventions.

(6) A lack of technical assistance for program conceptualization, implementation, and evaluation undercuts efforts to improve schools. Urban school districts seldom employ a critical mass of knowledgeable personnel who can be assembled over a period long enough to oversee an intervention project. As a result, decisions are frequently more expedient than grounded in a thorough discussion of the literature on school change and staff development, and interventions seldom receive the attention they deserve. In each of the four cases cited above, for example, the failure to acknowledge the need for a significantly more intensive staff development component seriously compromised the impact of the interventions. Districts must provide adequate technical assistance for staff involved in all stages of interventions for school improvement.

(7) A lack of awareness of the limitations of teachers and administrators in project schools limits the utility of the staff development activities designed to support the implementation of the interventions. In each of the four cases cited above, for examples, (a) teachers displayed serious errors in their knowledge of subject matter which could not be fully corrected due to a lack of personnel and a mechanism to do this, while (b)

administrators displayed a similar lack of knowledge about ways to facilitate group decision-making and strategies for developing a long range plan for school improvement. Districts must understand the limitations of their teachers and administrators and how these limitations may be differentially distributed among schools. These limitations must be taken into account when planning interventions for school improvement.

(8) The instability of teachers in each school presents a problem for program continuity. As teachers leave both expertise and momentum are frequently lost. In most cases in urban districts the better teachers leave because of promotions, or because their seniority affords them a choice. Replacements are frequently less skilled and less experienced. In any event, teacher turn over is likely to disrupt the intervention. Districts must give some thought to ways to provide greater stability for teachers (and in some cases administrators) in schools engaged in school improvement projects.

(9) In placing too many competing demands on teachers and administrators districts set up a situation where school improvement project cannot succeed. In each of the four cases cited above teachers were expected to be working on several new activities at the same time. Teachers in the effective schools project, for example, were engaged in a pilot to assess the effectiveness of teaching mathematics using either the Missouri Math approach or Teacher Assistant Instruction, while at the same time working to master a newly aligned curriculum that dropped the emphasis on the basal reader in reading. Similarly, teachers in the SWAS project were asked to master several new strategies for enhancing students comprehension skills, as well as learn how to use cooperative learning. It became evident that teachers were over-burdened with expectations they were unable to meet, and that the projects were designed in ways that missed the realities of working in these urban schools. Districts must clarify and simplify what they want teachers to do. These expectations must be sensitive to the demands in the school context.

(10) Attempting to create effective school improvement projects that do not disrupt existing organizational practices may be an impossibility. In each of the four cases cited in this paper, for example, it was a given that staff development activities should fit within existing (union negotiated) district guidelines. Such limitations perpetuate intervention models that include uniform practices and districtwide projects. Districts must create ways to support interventions that begin with the question "what should we do?" not the question

"what can we do given the existing policies and practices?"

(11) A failure to understand and accommodate site specific (contextual) differences among schools in both the planning and implementation phases will limit the impact of the school improvement project. In all four of the cases cited above schools had different needs (e.g., teachers enjoyed different levels of expertise, principals varied in their level of commitment to the intervention and in their ability to work collaboratively with their teachers on program development, IA's had very disparate skills in developing and delivering staff development sessions for their teachers). Given the design of all four programs, however, these differing needs went unmet. Neither the resources nor the time to address these site specific needs were planned for. Districts must be sensitive to contextual differences when planning school improvement interventions.

(12) A failure to negotiate a fully developed partnership between the district and a university involved in an intervention weakens the conceptualization, implementation, and evaluation stages of the intervention. In each of the four cases cited above the role of the university faculty was never clarified for all the actors in each project. Moreover, the extended resources of the universities were not effectively used even when it became evident that additional assistance was needed. Districts should explore developing long-term collaborative relationships with universities (as well as other agencies in the community) to maximize the impact of school improvement interventions.

The message from this analysis of the barriers inhibiting the effectiveness of four school improvement projects may seem deceptively simple. To ignore the message, however, means that urban schools will continue to be less effective than they might otherwise be.

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VIDEO CONFERENCE 9

RECONNECTING STUDENTS AT-RISK TO THE LEARNING PROCESS

During this last video conference on restructuring schools, our lens focuses on restructuring from the perspective of at-risk students. Several earlier speakers and articles have addressed issues for school-dependent children (see particularly Vol. I, Chapters 3-4). The writers selected for inclusion in this section share similar concerns about restructuring. They do not think that the basic issues are centered in school organization or structure. Rather they argue that there needs to be a new sense of mission and content (to use Moorman and Egermeier's distinctions--see Vol. I). They raise many interesting questions about who is at risk and why.

Before reading the articles, you may want to rethink your own understanding of how restructuring could best meet the needs of the increasingly diverse student population now part of American schools. Are American teachers sensitive to the tremendous cultural variations that exist in language and communications patterns, in values placed on various types of educational experiences, and in children's general experiences and sense of well-being? Do our curricula and forms of instruction facilitate learning for all children? Have we been making accommodations to the new student populations we are serving?

The authors included in this section focus much of their concern on the need for teachers and the education profession

generally to develop a deeper understanding of the students they are teaching--what they bring with them, including their own experiences and values, their language and their self-esteem. The authors also suggest changes in curriculum and instruction to make them more responsive to minority students.

James P. Comer (1988) discusses the issues involved in providing a good education for minority children from his perspective as part of a collaborative project between the Yale Child Study Center and two inner-city, all-black schools in New Haven. From a rocky beginning, the project finally developed a powerful model for improvement--one that brought parents into an active role in the schools and created governance and management teams and mental health teams. According to Comer, focusing on child development and social development has been found to be as important as attention to intellectual development. These experiences taught him that the "need to bridge the social and cultural gap between home and school may lie at the root of the poor academic performance" (p. 43) of many poor minority students.

James B. Greenberg's (1989) article describes the way the Community Literacy Project at the University of Arizona has approached bridging the home-school distance for Mexican-American families. The project has contrasted the kinds of knowledge needed in a agrarian society (from which most Mexican families have come) with that which is needed in industrial-shaped American schools, and in doing so the sources of problems become clear. Greenberg concludes that because schools seldom make use

of the knowledge parents have acquired, the funds of knowledge within households are often devalued. What is more tragic is that because little recognition or status is given to the kinds of knowledge that children acquire in their home lives, children also devalue much of what they know. Specific suggestions for restructuring schooling so that the cultural strengths of a more household-oriented school can be utilized are made in the article.

Shirley Brice Heath (1986) provides an in-depth example of the importance of understanding cultural variation by examining the patterns of language development in three different cultural communities in the Southeastern United States--mainstream, middle-class, school-oriented culture; Appalachian white textile mill culture; and a black textile mill community of recent rural origin. Each community guides children's development of language in different ways. In both mill communities, children entering school have not been socialized to use the language skills required in the school culture. These skills are evident, however, in children from mainstream, middle class communities. Heath's conclusion is similar to that of the other authors that "literacy events must be interpreted in relation to the larger sociocultural patterns which they may exemplify or reflect" (p. 74).

The final articles, one by Edward A. Silver and Margaret S. Smith (1990), the other by Silver (1990), represent a different but direct focus on reaching children in economically disadvantaged communities. Silver and Smith argue that schools

are failing to educate students, particularly in mathematics, because of a dry skill and drill orientation. They propose using the best knowledge gained from recent research (see Research into Practice: Teaching Mathematics and Thinking) to provide a better mathematics education for minority children. The thrust of the QUASAR Project is to bring the best expert knowledge to bear on creating better math teaching and learning. Community characteristics and involvement are not mentioned in these articles. Rather, improved teaching and real-world connections in math education are the central concerns.

These articles taken together represent the diversity of issues professionals have to address when we consider how best to operate effective learning environments for all students.

- . We need to look at the students and understand them well.
- . We need to be aware of community cultures and values.
- . We need to reflect on our own teaching and the adequacy of our instruction.
- . We need to think about ways to involve parents and community members in meaningful ways in the schools.
- . We also need to think of ways we can become involved in the communities of our students, both, as participants and researchers.

Educating Poor Minority Children

Schools must win the support of parents and learn to respond flexibly and creatively to students' needs. A successful program developed in New Haven points the way

by James P. Comer

Thomas Jefferson and other advocates of free public schools believed fervently that an educated populace is the lifeblood of democracy. In their view the school clearly had a political purpose: to socialize children to become good citizens. Jefferson wrote, "I know no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion."

It is a long fall from this lofty ideal to the grim reality facing youths at the margins of today's society. Poor minority children are undereducated in disproportionate numbers across the

country. Academically such children may lag behind the national average by up to two years. In large cities as many as 50 percent of minority children drop out of school. The failure to educate these children makes ever harder the task of rectifying economic and social inequities. Job opportunities increasingly reside in service and technology industries, but poor minority youths are the least likely to have the social and academic skills these jobs demand. Unless schools can find a way to educate them and bring them into the mainstream, all the problems associated with unemployment and alienation will escalate.

The task seems overwhelming. And yet it can be done. In 1968 my colleagues and I at Yale University's Child Study Center started an intervention project at two inner-city schools in New Haven. Unlike many of the reforms that are now being tried or proposed, which focus on academic concerns such as teacher credentials and basic skills, our program promotes development and learning by building supportive bonds that draw together children, parents and school. By 1980 academic performance at the two New Haven schools had surpassed the national average, and truancy and disciplinary problems had declined markedly. We have now begun to duplicate that success at more than 50 schools around the country.

The perceptions underlying our approach are partly rooted in my own childhood. In 1939 I entered an elementary school in East Chicago, Ind., with three other black youngsters from a low-income community. The school was considered one of the best in the district; it was racially integrated and served the highest socioeconomic group in town. All four of us were from two-parent families, and our fathers made a living wage in the local steel mill. We were not burdened by any of the disadvantages—school segregation, inadequate schools, single-parent families, unemployment—commonly cited as causes of educational underachievement in poor black children. Yet in spite of the fact that we had similar intellectual potential, my three friends have had difficult lives: one died prematurely from alcoholism, a second spent a large part of his life in jail and a third has been in and out of mental institutions.

Why did my life turn out better? I think it was largely because my parents, unlike those of my friends, gave me the social skills and confidence that enabled me to take advantage of educational opportunities. For example, I became friendly with my third-grade teacher, with whom I would walk hand in hand to school every day. My parents took me to the library so that I could read many books. My three friends, however, never read books—which frustrated and angered their

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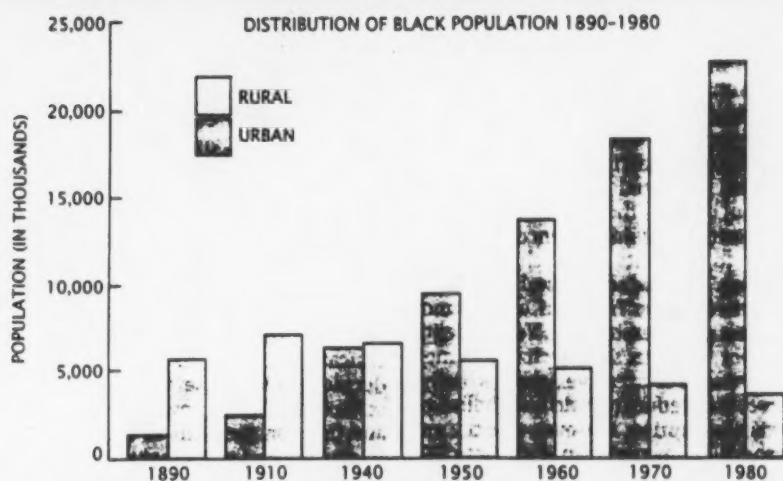
teachers. What the teachers did not realize was that their parents were afraid to go to the library; indeed, they were uncomfortable around white people in general and avoided them.

In the 1960's I began to speculate that the contrast between a child's experiences at home and those in school deeply affects the child's psychosocial development, and that this in turn shapes academic achievement. The contrast would be particularly sharp for poor minority children from families outside the mainstream. If my hunches were correct, then the failure to bridge the social and cultural gap between home and school may lie at the root of the poor academic performance of many of these children.

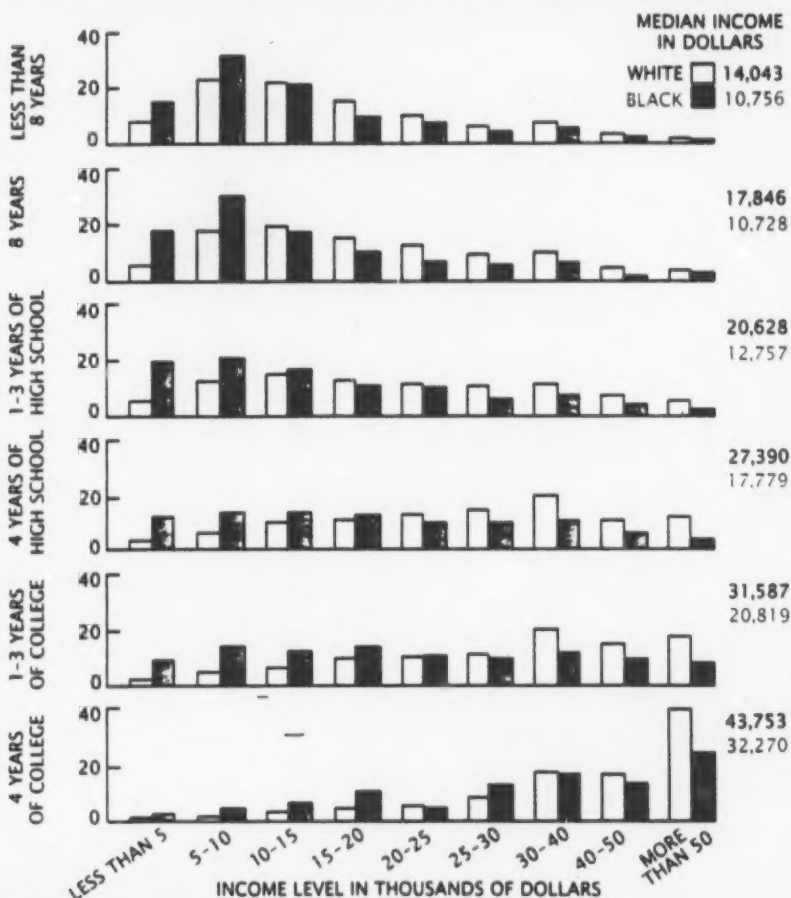
Yet current educational reforms de-

emphasize interpersonal factors and focus instead on instruction and curriculum. Such approaches reveal a blind spot: they assume that all children come from mainstream backgrounds and arrive at school equally well prepared to perform as the school expects them to. Reading, writing, arithmetic and science are delivered to students in much the same way as tires, windows and doors are attached to the frame of an automobile on an assembly line. Yet students do not come in standardized frames that passively receive what is delivered. Most educators do not challenge this assumption, however, and the approach has never been systematically evaluated or modified through direct experiments in schools.

In contrast, Albert J. Solnit and his colleagues at Yale's Child Study Center believed educational reformers should develop their theories by directly observing and intervening in schools over long periods of time. Solnit's ideas inspired the school-intervention research project that was begun by the center and the New Haven school system in 1968 and continued until 1980. I was asked to direct the project and to work with a social worker, a psychologist and a special-education teacher from the center. We decided to immerse ourselves in the schools to learn how they function and then, on the basis of our findings, to develop and implement a model for improving the schools. We were guided by our knowledge of public health,



BLACK MIGRATION into urban communities (towns of more than 2,500 people) accelerated after World War II. The rural black population once greatly outnumbered the urban population, but the postwar economic boom led large numbers of blacks to move to the cities in search of jobs. Discrimination and lack of adequate education, however, denied many blacks access to the primary urban job markets.



EDUCATION LEVEL correlated to family income for whites and blacks shows that black incomes are at least a third less than the incomes of whites with equivalent schooling. For a given level of schooling completed by the family head, the graph indicates the percentage of families within each income bracket. Lack of education reduces the income of blacks more than that of whites, and black income rises more slowly with education than white income does. The data, for 1984, are from *Statistical Abstract of the United States 1987*, issued by the U.S. Department of Commerce.

human ecology, history and child development—and by common sense.

Our model evolved in two schools: the Martin Luther King, Jr., School, which had about 300 pupils from kindergarten through fourth grade, and the Katharine Brennan School, which had more than 350 pupils from kindergarten through fifth grade. The pupils were 99 percent black and almost all poor; more than 70 percent were from families receiving Aid to Families with Dependent Children. At the beginning of the project the pupils were ranked near the bottom in achievement and attendance among the 33 schools in the city. There were serious problems with attendance and discipline. The staffs were discouraged; their turnover rate was 25 percent. Parents were dejected, distrustful, angry and alienated.

Both staff and parents approached the first year of the project with high expectations. But because teachers and administrators could not agree on clear goals and strategies, we had a difficult school opening. Some new teachers tried to have open classrooms, but the children soon became uncontrollable. Teachers blamed the administration for not providing adequate resources, and parents became angry—angry enough to march on one of the schools. Needless to say, the students did not learn much.

We, on the other hand, learned a great deal. The spectacular deterioration of the schools illuminated their social dynamics, something that would otherwise have taken us many years to perceive. We learned, first of all, that both the schools and our project needed more structure; we established regular meetings so that the staff could coordinate plans and set goals. More important, our analysis of interactions among parents, staff and students revealed a basic problem underlying the schools' dismal academic and disciplinary record: the sociocultural misalignment between home and school. We developed a way to understand how such misalignments disrupt beneficial relations and how to overcome them in order to promote educational development.

Our understanding is based on the fact that a child develops a strong emotional bond to competent caretakers (usually parents) that enables them to help the child develop. Many kinds of development, in social, psychological, emotional, moral, linguistic and cognitive areas, are critical to future academic learning. The attitudes, values and behavior

of the family and its social network strongly affect such development.

A child whose development meshes with the mainstream values encountered at school will be prepared to achieve at the level of his or her ability. In addition the meshing of home and school fosters further development: when a child's social skills are considered appropriate by the teacher, they elicit positive reactions. A bond develops between the child and the teacher, who can now join in supporting the overall development of the child.

A child from a poor, marginal family, in contrast, is likely to enter school without adequate preparation. The child may arrive without ever having learned such social skills as negotiation and compromise. A child who is expected to read at school may come from a home where no one reads and may never have heard a parent read bedtime stories. The child's language skills may be underdeveloped or non-

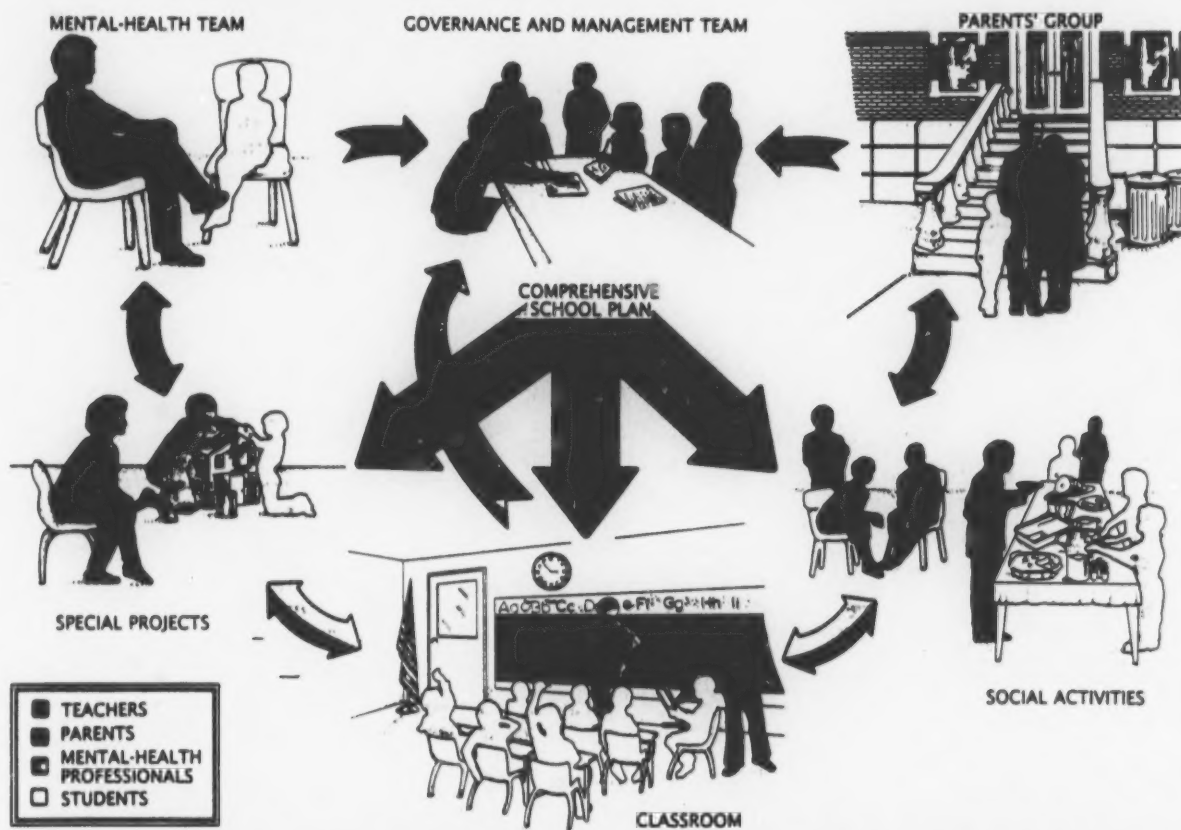
standard. Expectations at home and at school may be radically at odds. For example, in some families a child who does not fight back will be punished. And yet the same behavior will get the child into trouble at school.

Such lack of development or development that is at odds with the mainstream occurs disproportionately often among children from the minority groups that have had the most traumatic experiences in this society: Native Americans, Hispanics and blacks. The religious, political, economic and social institutions that had organized and stabilized their communities have suffered severe discontinuity and destruction. Furthermore, these groups have been excluded from educational, economic and political opportunity. These themes are particularly vivid in the black experience.

Blacks arrived in this country forcibly uprooted from their own culture, and they had another culture—that of

slavery—imposed on them. Slavery was a state of enforced dependency and inferiority, which offered no future. The dominant Anglo culture, in contrast, placed a high value on independence and personal advancement. The dominant culture devalued the imposed black culture, and many blacks in turn developed a negative self-image. After the abolition of slavery, widespread discrimination denied blacks access to education and to the political and economic mainstream. Yet in spite of these psychological and social handicaps many poor black families, particularly in rural areas, were able to develop strong religious and cultural support systems and to function reasonably well.

After World War II opportunities for rural work diminished and many black families migrated to cities, but as a result of discrimination they were largely shut out of the primary job markets. Moreover, urban jobs de-



SCHEMATIC of the school-intervention program shows its key components and the relations among them. A governance and management team, consisting of the principal, parents, teachers and a mental-health worker, develops a comprehensive school plan covering academics, social activities and special programs, such as a Discovery Room for children who have lost interest in learning. Social activities, such as potluck

suppers, teach children social skills and enable parents to meet teachers. Some parents become teachers' aides. The mental-health team assigns a member to work with a child who is having difficulty. It also tries to prevent behavior problems by recommending changes in school procedures. By reducing behavior problems and improving relations with parents, the program creates a school climate conducive to learning.

manded a higher level of education than rural ones, and blacks, undereducated in prewar years, were at a disadvantage. At the same time, they experienced severe stress resulting from the loss of supportive communities. For all these reasons, many black families began to function less well and could not provide their children with preschool experiences that would enable them to succeed in school.

Furthermore, blacks were able to achieve mainstream success only in limited professional areas. Thus they could not gain a significant share of political, economic and social power in the larger society and thereby help to advance socially marginal blacks. With time, marginal blacks came to resent mainstream blacks and whites for being unable—and apparently unwilling—to help them, and they defensively rejected the mainstream.

In spite of their alienation from the mainstream, many poor black parents still look to the school as their hope—indeed, their only hope—for the future, even though at the same time they expect the school to fail them and their children as other mainstream institutions have. And in fact the schools often do fail them. Typical schools, with their hierarchical and authoritarian structure, cannot give

underdeveloped or differently developed students the skills and experiences that will enable them to fulfill expectations at the school. Instead such students are labeled "bad," unmotivated or stupid. Staff people punish the children and hold low expectations for them, often blaming the students, their parents and their communities for the problems. Parents, for their part, take the problems as a personal failure or as evidence of animosity and rejection by the mainstream. They lose hope and confidence and become less supportive of the school. Some parents, ashamed of their speech, dress or failure to hold jobs, become defensive and hostile, avoiding contact with the school staff.

The result is a high degree of mutual distrust between home and school. A black first-grade teacher in an inner-city school with a nearly all-black student body recalled explaining classroom rules on the first day. When she finished, a six-year-old raised his hand and said, "Teacher, my mama said I don't have to do anything you say." Fortunately this teacher understood the underlying problem, but most teachers would have reacted angrily, whereupon any chance of gaining parental cooperation would have quickly evaporated. This degree of alienation between home and school makes it

difficult to nurture a bond between child and teacher that can support development and learning.

The consequences of alienation become most apparent when these children reach the age of about eight. Around this age they are expected to progress academically at a rate that begins to exceed their level of development. In addition the children begin to understand how they and their families differ in income, education and sometimes race and style from other people in the school. At this age, moreover, children seek to decrease their dependence on adults and on the approval of adults.

Unable to achieve in school, these children begin to see academic success as unattainable, and so they protect themselves by deciding school is unimportant. Many seek a sense of adequacy, belonging and self-affirmation in nonmainstream groups that do not value academic achievement. Such children are at risk for dropping out, teen-age pregnancy, drug abuse and crime. On the other hand, the decision to pursue academic achievement and to join the mainstream also exacts a heavy price: such a choice means rejecting the culture of one's parents and social group.

Our analysis of the two New Haven schools suggested that the key to academic achievement is to promote psychological development in students, which encourages bonding to the school. Doing so requires fostering positive interaction between parents and school staff, a task for which most staff people are not trained. Such changes cannot be mandated or sustained from outside the school. Our task, then, was to create a strategy that would overcome the staff's resistance to change, instill in them a working understanding of child development and enable them to improve relations with parents.

From our experience during the first difficult year it was obvious that we would make no progress until we had reduced the destructive interactions among parents, teachers and administrators and given cohesiveness and direction to the schools' management and teaching. To this end we created in each school a governance and management team of about a dozen people led by the principal and made up of elected parents and teachers, a mental-health specialist and a member of the nonprofessional support staff—all the adults who had a stake in the outcome. The teams decided issues ranging from the schools' aca-

demic and social program to changes in school procedures that seemed to engender behavior problems.

Several rules guided these teams. First, team members had to recognize the authority of the principal but, equally important, the principal could not push through decisions without weighing the concerns of the team members. Second, we agreed to focus efforts on problem solving and not waste time and energy in placing blame. Third, we made decisions by consensus rather than by vote; this promoted cooperation by reducing the harmful tendency of groups to polarize into "winners" and "losers."

The teams were not fully accepted at first, nor were they immediately effective, because we at the center were viewed as outsiders (from Yale, to boot, which working-class people in New Haven have always regarded with suspicion). But as we helped the principals to see that power sharing increased their own ability to manage the school, and as teachers and administrators benefited, the staff became more willing to apply our expertise in social and behavioral sciences to every aspect of the school.

We invited parents from among the group that had protested against us in the first year to join the team. With their input we developed a program that involved parents at three levels: shaping policy through their representatives on the governance and management team, participating in activities supporting the school program, and attending school events.

At one point about a dozen parents worked as classroom assistants and formed the core of the parents' group. (They were paid the minimum wage.) Parents and staff sponsored activities such as potluck suppers, book fairs and graduation ceremonies. These social gatherings fostered good relations between parents and staff, so that when a child was having problems, the staff could discuss the matter with the parents without eliciting defensive reactions. As a result the school climate and student behavior improved, and more parents began to attend school activities.

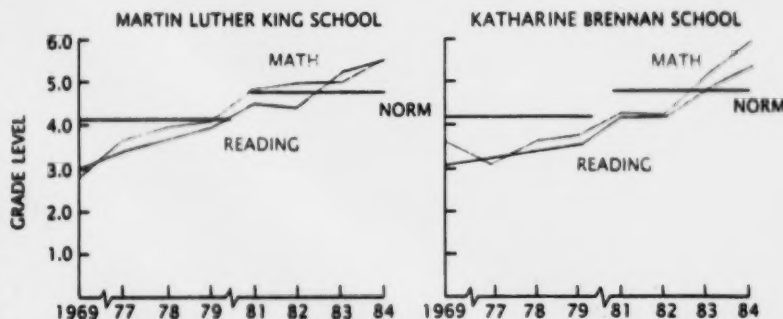
In a typical school, students who have emotional, learning or behavioral difficulties are seen by the school's psychologist, social worker or special-education teacher, who all work independently of one another. In our project, however, they worked as a team. We found this to be more efficient; the team would discuss each case and assign one member to it. The

team approach also made it easier to detect patterns of troublesome behavior and to determine whether some aspect of the school was making them worse. Through its delegate on the governance and management team, the mental-health group recommended changes in school policies and practices so that students' developmental needs would be served better and behavior problems prevented.

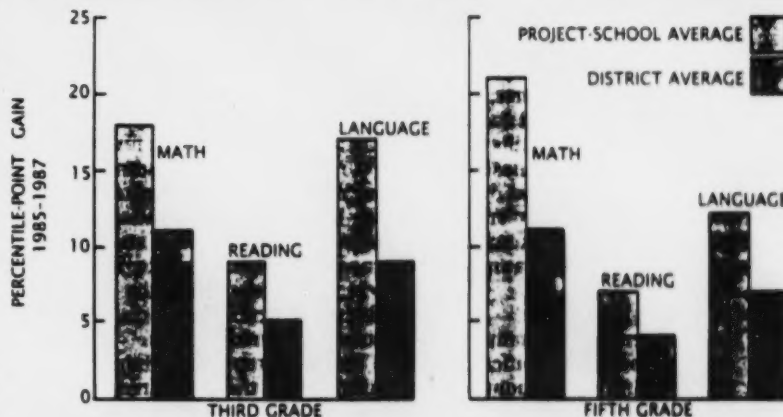
These actions reduced the sense of failure, the feelings of anger and the loss of confidence that can lead to problem behavior among students. For example, an eight-year-old who was transferred into King from another school was taken directly to the classroom. He panicked, kicked the teacher in the leg and ran out. Usually such a child is punished. If nothing is

done to reduce the child's anxiety, the cycle is often repeated until the child is labeled disturbed and referred for treatment. Our mental-health team helped the school staff to understand that the child's anxiety was a natural reaction to being thrust among strangers, and, together with the staff, we developed an orientation program to introduce transfer students and their parents to the school.

In the course of the 12 years we spent in the New Haven schools, other programs emerged in response to students' needs. In one school, children were kept with the same teacher for two years. A Discovery Room enabled "turned off" children to form a trusting relationship with an adult and, through play, rediscover an interest in learning. A Crisis Room provided a



FOURTH GRADERS at the two New Haven schools taking part in Yale University's Child Study Center's intervention program registered steady gains in achievement-test scores from 1969 through 1984. The graphs show mean scores on the Iowa Test of Basic Skills in reading (red) and mathematics (blue); scores in 1969 are for the Metropolitan Achievement Test. From 1969 through 1979 the tests were given in the fall (when the norm is a score of 4.2); from 1981 through 1984 the tests were given in the spring (norm score 4.8). Scores have stayed near the 1984 levels since then.



AVERAGE PERCENTILE GAINS on California Achievement Test scores from 1985 through 1987 were larger for 10 mainly black schools in Prince Georges County, Md., that use the Comer program than they were for the school district as a whole. Test scores of black students still lag behind those of white students, but the gap is narrowing. The school district, the 15th-largest in the U.S., has 105,000 students, 62 percent of whom are black. The schools using the program are more than 90 percent black; they receive extra staff and funds because they have been hard to integrate.

refuge for children who were "out of control." We discovered that this behavior could often be traced to a traumatic home experience, and so staff members helped the children to handle their feelings and regain a sense of control. With each intervention the staff became increasingly sensitive to the concerns of developing children and to the fact that behavior problems result mainly from unmet needs rather than from willful badness—and that actions can be taken to meet these needs.

By 1975 the program was clearly having an effect. Behavioral problems had declined, relations between parents and staff had improved and the intelligence of the children had become manifest. In that year we drew up a formal School Development Program based on the key ingredients of our success: the governance team, the parents' program and the mental-health team.

Having established a way to achieve and maintain a smoothly functioning school, we decided to see whether the school might also play a role in redressing the problem of social misalignment. We argued that it should be possible to teach our nonmainstream students the social skills that are expected of them in school, and that the acquisition of these skills would help them to succeed academically.

Staff and parents devised a curriculum of social skills, with instruction in the subjects children would need to know: politics and government, business and economics, health and nutrition, and spiritual and leisure activity. The staff chose specialists to help develop the program. Children learned how to write invitations and thank-you notes, how to serve as hosts, how the body functions, how to write checks, how to plan concerts, and so on. Each activity combined basic academic skills with social skills and an appreciation of the arts. These activities were an immediate and dramatic success. Students, parents and staff alike all felt a surge of excitement and a growing sense of participating in the mainstream.

The intervention program in New Haven produced significant academic gains. The students had once ranked lowest in achievement among the 33 elementary schools in the city, but by 1979, without any change in the socioeconomic makeup of the schools, students in the fourth grade had caught up to their grade level. By 1984 pupils in the fourth grade in the two schools ranked third-

and fourth-highest on the Iowa Test of Basic Skills. By the early 1980's attendance rates at King were either first or second in the city. There have been no serious behavior problems at either school in more than a decade.

In 1980 our group left the schools. The program was fully integrated into the normal practices of the staff, who continued to carry it out. In the same year we began to develop a way to apply our program in other schools. We left intact the key elements of our success in New Haven—the governance and management team, the parents' program and the mental-health team, along with our operating rules—while allowing specific social and academic activities to vary with the needs of a particular school. In a sense the program enables school personnel to engage in a "clinical practice": armed with theories of child development and education, together with observations of children and school systems, they can diagnose problems in the school and develop solutions.

The Prince Georges County, Md., and Benton Harbor, Mich., school districts, which serve mainly low-income black children, have been using the program for several years; they have achieved successes on a par with those of the two New Haven schools. The program is being introduced to all New Haven schools, as well as to three other districts: Norfolk, Va., Lee County, Ark. (both also serving mainly poor black children), and Leavenworth, Kans. The program is now being implemented in more than 50 schools around the country, including two middle schools and one high school.

All the money and effort expended for educational reform will have only limited benefits—particularly for poor minority children—as long as the underlying developmental and social issues remain unaddressed. Yet most teachers and administrators are not trained to organize and manage schools in ways that support the overall development of students. Nor does their training enable them to analyze, much less solve, the social-misalignment problems of children from outside the mainstream.

The first step toward improving the education of these children, then, is to induce teachers' colleges and schools of education to focus on student development. Teachers who invest time in training will have an incentive to use what they have learned. The efforts of individuals will not be enough; the entire staff of a school must embrace new ways of thinking.

School districts, state and local governments and school boards must actively support these changes. They must recognize that students' social development is as important to society as their academic ability. They must select, certify and reward teachers and administrators who are skilled in nurturing the development of students. They must evaluate schools by their ability not only to produce high test scores but also to prepare students to assume adult responsibilities. And they must provide necessary funds.

The Federal Government must play a leading role in bringing about national educational reforms that can prepare young people to be effective and responsible citizens. Besides appropriating funds and establishing programs, the Government must facilitate the interaction of state and local government, educational authorities and private interests—foundations, businesses, colleges and universities.

To pull all of this together, I believe a National Academy of Education is needed. Its purpose would be to set national priorities, assess current research in education, learn how to implement approaches that work, identify areas for further study and allocate resources effectively. Such an academy must be free from the pressures of political expediency, and the interests of researchers must be balanced against those of educators. It could be created largely from existing Federal programs and governed by those who have a stake in education: educators, parents, government and business. A National Academy of Education could spearhead a process of change that is geared above all to the needs of children and to the national interest. It could set a timetable and move forward at a rational pace that recognizes the urgent need for reform and at the same time is guided by knowledge and common sense.

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Funds of Knowledge: Historical Constitution,
Social Distribution, and Transmission.

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Paper for Session on Collaborative Research: Combining Community
and School Resources to Improve the Education of Hispanics in
Tucson. Society for Applied Anthropology, Annual Meetings, Santa
Fe, April 5-9, 1989.

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Funds of Knowledge

One of the central concepts guiding our work in the Community Literacy Project¹ is what we call funds of knowledge (Moll, Velez-Ibanez, and Greenberg 1988). Perhaps the best way to explain what we mean by funds of knowledge is to relate them to more generally understood household funds. In his discussion of household economy, Wolf (1966) distinguishes a number of funds which households must juggle to make ends meet: caloric funds, funds of rent, replacement funds, ceremonial funds, social funds. Entailed in each of these are a wider set of activities requiring specific bodies or funds of knowledge. These funds are a kind of operations manual of essential information and strategies households need to maintain their well-being. If we define such funds as those bodies of knowledge of strategic importance to households, then we may ask pertinent questions such as: How are such assemblages historically constituted? How variable are they? How are they transformed as they move from one context to another? How are they learned and transmitted? How are they socially distributed?

The Problem of Education in Industrial Societies

Outside of the industrial world, few cultures have problems in educating their children to become useful members of society. While such societies may be organizationally less complex, the complex bodies of knowledge which must be mastered--ritual, ecological, social--are no less complex than our own. Why is it then that our children often fail? What is it about the way in which we have organized education in our schools that sets children up to fail?

Historically the difficulty we have in educating our children begins, I would argue, not in the schools, but in the separation in industrial societies of the workplace from the home. We may better understand the impact of this separation by examining their previous integration. For example, most Mexican families in the southwest either have ancestors who were farmers and ranchers or still have relatives engaged in these activities.

To survive, such households not only often produce much of what they consume, but the range of knowledge and skills their members must master is truly impressive. Members have to be generalists and must know a bit about everything. To be good farmers, they must understand the characteristics of local ecosystems--soils, plants, pests, hydrology, and weather. In the desert, they must know about water management and flood control. As ranchers, they must know about animal husbandry, range management, and veterinary medicine. As all sorts of equipment must be maintained, they need to know something of blacksmithing and mechanics. And just to provide shelter, they have to know some masonry, carpentry, and even electrical wiring. Because often there are no doctors nearby or medical costs are prohibitive, to cure themselves some members

required extensive knowledge of folk remedies, medicinal herbs, and first aid procedures.

As households have moved into urban labor markets, and have become dependent on wages, not only has the locus of many work activities moved outside the home, but the funds of knowledge required of workers have become increasingly specialized. The segregation of home and work activities has a number of consequences for learning. Even if parents have extensive funds of knowledge, because work usually takes place outside of the home, children are systematically excluded from meaningful participation in such activities and from the "proximal zones of development" which Vygotsky (1978) notes are entailed in such activities. In such circumstances, children may learn little or nothing of the skills and knowledge their parents possess. The specialization of labor in industrial society also affects the ability of parents to teach their children meaningful skills. As industrial production often reduces the nature of work to fairly unskilled tasks--for example, on the assembly line--little is gained by teaching these to children.

Another effect of the segregation of the workplace from the home, and of increasing specialization, is that the funds of knowledge that households need for their survival and reproduction are increasingly found not within them, so even to solve everyday problems, households must either turn to their social networks or to a variety of formal institutions such as government offices, labor unions, and of course schools.

The Industrialization of Educational Institutions

Prior to the Industrial Revolution, most children did not attend school. Education was primarily for the children of the elite and purposely avoided any kind of trade or occupational training. Between 1870 and 1890, however, as the Industrial Revolution got underway, common schooling penetrated most of the metropolitan areas of the United States.

As Braverman (1974) points out, early on social science was applied to the capitalist workplace to make it more efficient. Starting in the 1880s, efficiency experts such as Fredrick Taylor began to analyze the movement of workers in the workplace. Taylor held that if the movements required for particular tasks could be carefully matched to the competencies of workers, then their hiring and training could be scientifically pursued. Because the systematic pre-planning and pre-calculation of all the elements of the labor process took the management of the labor process out of the hands of the worker, Taylorism soon gained a strong following among capitalists, and gave rise to the school of scientific management (Braverman 1974:91,119). With the spread of compulsory education by the early 1900s, the increasing costs of education became almost a universal concern, and educators soon applied

Taylorism to schools. In their efforts to scientifically map out the most basic of educational units, to determine how best to hire and train school teachers, school reformers tried to design schools to more closely approximate factories in their day-to-day operations (DeYoung 1989:75).

Taylorism not only influenced the structure of schools, but also how materials were taught. Early learning psychologists, such as Edward Thorndike, relying on behavioralist models of stimulus and response, argued that learners need not understand material that teachers deem worth knowing as long as the association between stimulus and response was adequately reinforced. Moreover, learning psychologists argued that learning was best accomplished when learner activities are broken down into the smallest possible units (DeYoung 1989:71).

The most perplexing problem for school leaders was how to design an educational program that would be efficient, cost effective, and at the same time provide for equality of opportunity. The solution to this problem was offered by psychologists who had developed intelligence tests in WWI. Intelligence tests provided a "scientific" rationale for the screening and sorting of children into appropriate classes and provided "the key to making schools scientifically efficient while at the same time meeting the emerging needs of business and industry" (DeYoung 1989:76).

Structural Features of Industrial Schools

While historically the response to these problems has been to apply features of the industrial model to mass education, unfortunately its organization is so radically different from the modalities through which learning takes place within households that (instead of creating proximal zones of development in which children through their interaction with adults are encouraged to perform at a higher level of competence than they could on their own), schools often create zones of underdevelopment in which children are often so damaged that they end up with less than they had to begin with. This model of industrial organization is particularly alien and alienating to Mexican households; and, ultimately, as I shall argue, damaging to children.

Schools and factories share a number of structural features which tend to organize interactions and determine their quality. If we compare the industrial features of schools to the way learning takes place within households, we may begin to understand how their alienating features set children up to fail. In their quest for efficiency, schools have turned to economies of scale, and like factories have evolved similar organizational principles which contrast markedly from those used in homes: centralization, hierarchical organization, regimentation, and rigid codes of discipline. These structural features of the factory model, I would argue, are so powerful that regardless of teaching methods

per se, they overdetermine the outcome; that is, they set children up to fail.

Centralization

In schools, as in factories, the god of efficiency has led to centralization. Masses of students are brought to a central location and confined within institutional walls. Unlike households where learning takes place in context around concrete activities--when and where they occur--the confining aspects of schools isolate students from many contextual learning types of activities. Because it is difficult to replicate contextual learning within the confining spaces of classrooms, lessons about such subjects tend to be abstract at best. At worst, such lessons have nothing to do with the kinds of experiences students gain outside the classroom. When lessons are decontextualized, or have no ground in a student's experience, they are not only harder to master, but because they seem irrelevant, are soon forgotten.

Assembly Line Logic

Not only are lessons often decontextualized, but a kind of assembly line logic is applied to education. Where in a home setting, instruction is easily individualized and tailored to a child's needs, mass education does not lend itself easily to such individualization, rather emphasis is placed on "general skills." In contrast with the kinds of proximal zones of development found within the home where children learn the skills to be mastered through a series of holistic approximations, the "general skills" taught in the classroom are reduced to minimal and "easily learned" units to create sequential lessons. The unintended consequence of such ordering is that students often do not understand the larger gestalt and cannot see the forest for the trees. If the child has difficulty mastering these "simple" lessons, the presumption is that he needs more practice--that is, drill. Drill, of course, simply bores or frustrates a child, especially if his difficulty in mastering the material stems from a failure to grasp its gestalt.

Because the logic of the assembly line ranks lessons in order of difficulty and sequences them, children are divided into age-grouped classes and ability groups within classes. Unlike households, where learning is not only facilitated by adults, but perhaps more importantly, by the interaction of children of different ages, this grouping of children into classes has a profound affect on learning. Because children are placed in groups which share more or less an equal ignorance, the control of information within the classroom tends to become the exclusive domain of the teacher. While doubtlessly the asymmetrical structure teaches children important lessons about authority and class, it does so by depriving them of one of the most important tools for learning: teaching others.

Asymmetrical Relations of Power

Moreover, because relations of power between student and teacher are highly asymmetrical, lessons follow the teacher's plans rather than the student's interests and the master plan becomes the master's plan. In contrast to instructional modes in households where children ceaselessly ask questions about whatever interests them, questions in the classroom are more often initiated by the teacher. Even when they are initiated by a student, such questioning is usually highly controlled by teachers--permission must be obtained, hands must be raised and so on. While controlling questions may be necessary to maintain this industrial pace of lessons, in this process children lose control of yet another important tool for learning.

Another basic contrast between households and schools is the ratio of adults to children. Parents seldom need to manage large numbers of children. Even in large families, adults use the age spread among children to share this burden. In the name of economic efficiency, teacher to student ratios creep toward the limits of group control. Because teachers must manage large groups, they spend increasing amounts of time on maintaining order, rather than on teaching, and rules of discipline characteristic of the workplace are instituted in which a Victorian attitude tends to prevail toward breaches of discipline: punishments take the form of detention and isolation.

Teachers face not just groups of children which are both far larger and more homogeneous than those within a household context, but the nature and dynamic of relations between the social actors is decidedly different. Although the relations between parent and child, and teacher and student would, on the surface, appear to be similarly asymmetrical--there is an important difference between them: the nature of the relationship. Parent-child relations are enduring, dense, and multifunctional. They are embedded in a matrix of multistranded relationships extending from the household to other kinsmen, friends, and neighbors. Teacher-student relationships, on the other hand, tend to be single stranded, temporary, and single functional. Out of these dense personal relationships, which characterize the home environment and its social networks, emerges the relationships of trust that give children greater latitude in the learning process to experiment and make mistakes than do the highly formalized relationship between teacher and student. Moreover, because funds of knowledge are unevenly distributed in the population, households often depend on dense personal relations for goods and services. These on-going reciprocities between households create bonds of mutual trust between family members and between households in which more than materials are exchanged. These exchange relations provide households access to valuable funds of knowledge (Velez-Ibanez 1982, Greenberg 1989).

Relationships even among students take on a decidedly different cast in the classroom than they do within the home. As in factories, because schools produce future workers, quality control has become a key feature of education. Because grades function as part of a larger economy credentialism, exams are more often used not as an instrument of assessment to identify the areas where a student needs more work--but as measurement of their assumed abilities. This practice rewards some students while failing others; and in the last analysis, provides the ideological basis for reproducing class structures.

As a result of the enormous attention paid to the measurement of individual performance, students are not just placed in competition with one another, but cooperation among them is either discouraged or highly regulated. When children are forced to compete, not only are winners and losers defined on a particular task, but unfortunately--because of the exaggerated importance placed on such performances--if a child fails, his self-image as well as his self-confidence may be damaged, and his motivation to continue to compete may disappear. Sadly, too often their attitude becomes, "If I can't win, I won't play."

The Effect of Schools on the Home

Because schools seldom make use of the knowledge parents have acquired, the funds of knowledge within households are often devalued. Even when parents are asked to participate in school activities, they are seldom asked to share their own knowledge and experience with children, but usually are given only subsidiary roles in assisting a teacher with an activity. As a result, parents often feel that the funds of knowledge they command are of little value, and that teachers are more capable of teaching their children than they are. What is more tragic is that because little recognition or status is given to the kinds of knowledge that children acquire in their home lives, children also devalue much of what they know.

Traditional Calls for Reforms

Most calls for school reform emphasize falling academic standards and achievement expectations, but in the end call for greater efficiency rather than a restructuring of the underlying factory model. For example, such criticisms often assert that too much time is wasted on non-academic activities. To improve academic achievement, such reformers would increase the amount of time spent on academic materials in class and at home. They would cut extra-curricular activities, or they would extend the school year and/or school day. Similarly, they would limit credit given for non-academic courses; e.g., driver education, typing, home economics.

Like company managers trying to increase production by calling for higher piecework quotas, such reformers would not only lengthen the working day, they would also raise academic standards. Most reports urging reform "argue that academic requirements...have been set too low and that better tests of academic proficiency ought to be developed and utilized. For example, schools should return to an emphasis on grades and grade point averages. Tests used in class to ascertain student performance should be more demanding" (DeYoung 1989:111-112). Reformers also direct their criticisms not just at students and the curriculum, but also at the mediocre quality of teachers. Like calls for better plant managers, such call for greater professionalization would increase the education required of teachers and stiffen the certification process.

Interventions

Structural interventions suggested by the household model, however, are substantially different from those usually put forth in school reform studies. The problem is not how to make schools more factory-like and more efficient, but how to create good learning environments. Although in the foregoing critique I have held up household modalities of education as an alternative model, let me make it clear that I am not calling for a return to home education, nor do I believe this would be practical. Quite simply, few households are capable of imparting to their children the range of skills necessary to be successful adults in our complex society. This does not mean, however, that our schools have to look like factories, or that we cannot learn valuable lessons from households about the transmission of knowledge.

What I am arguing is that both the funds of knowledge which households control, as well as the modalities through which such funds are transmitted, are resources that may be used to improve schooling. Although a number of interventions are suggested by the comparison of household with schools, because of the vast differences in organization between these arenas of education, household modalities of education cannot simply be transposed into schools. Thus, in the Community Literacy Project the ideas emerging from household studies are tried out in an after-school laboratory which brings together students, teachers, and researchers. In this setting, both experiments with the organization and methods of instruction may be tried out; those which prove successful then may be implemented in schools.

Lessons drawn from household studies thus far would indicate that where possible, lessons should build strategically on funds of knowledge, and that rather than being confined within institutional walls, they should be designed around concrete activities in context. Instruction should be more individualized and tailored to a child's needs, interest, and pace. Children should be given greater control over the flow and direction of lessons by letting their interests and questions determine and

guide lessons. Teaching should aim at providing children (through meaningful examples) the shape and gestalt of concepts to be learned, and the holistic approximations of the skills to be mastered should be encouraged. Tests should be used as instruments of skill assessment, and not graded. Rather, reward-like belts in Karate or merit badges in Scouting should be awarded as skills are mastered. Groups should be more heterogeneous in terms of age and skills of children. Such groups should be like family size groups, and older children should be given the responsibility of teaching younger ones. Within such groups cooperation among children and adults on learning tasks should be promoted. Long term stable relations between teacher and student should be encouraged--for example, by having the same teacher(s). Finally, by bringing parents and teachers together in teaching activities or units, it may be possible to build multistranded relationships among them in which parents would be encouraged to share their knowledge and experience with children.

Footnotes

1. This project entitled Community Knowledge and Classroom Practice: Combining Resources for Literacy Instruction was funded under a grant administered by Development Associates from the Office of Bilingual Education and Minority Language Affairs of the Department of Education. This research both entailed extensive ethnographic work with a sample of 36 households who have children in the fourth through sixth grades in elementary schools in the Mexican barrios of South Tucson, and similarly intensive ethnographic work was done in the classrooms they attend.

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What no bedtime story means: Narrative skills at home and school*

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ABSTRACT

"Ways of taking" from books are a part of culture and as such are more varied than current dichotomies between oral and literate traditions and relational and analytic cognitive styles would suggest. Patterns of language use related to books are studied in three literate communities in the South-eastern United States, focusing on such "literacy events" as bedtime story reading. One community, Maintown, represents mainstream, middle-class school-oriented culture; Roadville is a white mill community of Appalachian origin; the third, Trackton, is a black mill community of recent rural origin. The three communities differ strikingly in their patterns of language use and in the paths of language socialization of their children. Trackton and Roadville are as different from each other as either is from Maintown, and the differences in preschoolers' language use are reflected in three different patterns of adjustment to school. This comparative study shows the inadequacy of the prevalent dichotomy between oral and literate traditions, and points also to the inadequacy of unilinear models of child language development and dichotomies between types of cognitive styles. Study of the development of language use in relation to written materials in home and community requires a broad framework of sociocultural analysis. (Cross-cultural analysis, ethnography of communication, language development, literacy, narratives.)

In the preface to *S/Z*, Roland Barthes' work on ways in which readers read, Richard Howard writes: "We require an education in literature . . . in order to discover that *what we have assumed* - with the complicity of our teachers - *was nature is in fact culture, that what was given is no more than a way of taking*" (emphasis not in the original; Howard 1974:ix).¹ This statement reminds us that the *culture* children learn as they grow up is, in fact, "ways of taking" meaning from the environment around them. The means of making sense from books and relating their contents to knowledge about the real world is but one "way of taking" that is often interpreted as "natural" rather than learned. The quote also reminds us that teachers (and researchers alike) have not recognized that ways of taking from books are as much a part of learned behavior as are ways of eating, sitting, playing games, and building houses.

0047-4045/82/01049-28 \$2.50 © 1982 Cambridge University Press

As school-oriented parents and their children interact in the pre-school years, adults give their children, through modeling and specific instruction, ways of taking from books which seem natural in school and in numerous institutional settings such as banks, post offices, businesses, or government offices. These *mainstream* ways exist in societies around the world that rely on formal educational systems to prepare children for participation in settings involving literacy. In some communities these ways of schools and institutions are very similar to the ways learned at home; in other communities the ways of school are merely an overlay on the home-taught ways and may be in conflict with them.²

Yet little is actually known about what goes on in story-reading and other literacy-related interactions between adults and preschoolers in communities around the world. Specifically, though there are numerous diary accounts and experimental studies of the preschool reading experiences of mainstream middle-class children, we know little about the specific literacy features of the environment upon which the school expects to draw. Just how does what is frequently termed "the literate tradition" envelope the child in knowledge about interrelationships between oral and written language, between knowing something and knowing ways of labelling and displaying it? We have even less information about the variety of ways children from *non-mainstream* homes learn about reading, writing, and using oral language to display knowledge in their preschool environment. The general view has been that whatever it is that mainstream school-oriented homes have, these other homes do not have it; thus these children are not from the literate tradition and are not likely to succeed in school.

A key concept for the empirical study of ways of taking meaning from written sources across communities is that of *literacy events*: occasions in which written language is integral to the nature of participants' interactions and their interpretive processes and strategies. Familiar literacy events for mainstream preschoolers are bedtime stories, reading cereal boxes, stop signs, and television ads, and interpreting instructions for commercial games and toys. In such literacy events, participants follow socially established rules for verbalizing what they know from and about the written material. Each community has rules for socially interacting and sharing knowledge in literacy events.

This paper briefly summarizes the ways of taking from printed stories families teach their preschoolers in a cluster of mainstream school-oriented neighborhoods of a city in the Southeastern region of the United States. We then describe two quite different ways of taking used in the homes of two English-speaking communities in the same region that do not follow the school-expected patterns of bookreading and reinforcement of these patterns in oral storytelling. Two assumptions underlie this paper and are treated in detail in the ethnography of these communities (Heath forthcoming b): (1) Each community's ways of taking from the printed word and using this knowledge are interdependent with the ways children learn to talk in their social interactions with caregivers. (2) There is little

or no validity to the time-honored dichotomy of "the literate tradition" and "the oral tradition." This paper suggests a frame of reference for both the community patterns and the paths of development children in different communities follow in their literacy orientations.

MAINSTREAM SCHOOL-ORIENTED BOOKREADING

Children growing up in mainstream communities are expected to develop habits and values which attest to their membership in a "literate society." Children learn certain customs, beliefs, and skills in early enculturation experiences with written materials: the bedtime story is a major literacy event which helps set patterns of behavior that recur repeatedly through the life of mainstream children and adults.

In both popular and scholarly literature, the "bedtime story" is widely accepted as a given - a natural way for parents to interact with their child at bedtime. Commercial publishing houses, television advertising, and children's magazines make much of this familiar ritual, and many of their sales pitches are based on the assumption that in spite of the intrusion of television into many patterns of interaction between parents and children, this ritual remains. Few parents are fully conscious of what bedtime storyreading means as preparation for the kinds of learning and displays of knowledge expected in school. Ninio and Bruner (1978), in their longitudinal study of one mainstream middle-class mother-infant dyad in joint picture-book reading, strongly suggest a universal role of bookreading in the achievement of labelling by children.

In a series of "reading cycles," mother and child alternate turns in a dialogue: the mother directs the child's attention to the book and/or asks what-questions and/or labels items on the page. The items to which the what-questions are directed and labels given are two-dimensional representations of three-dimensional objects, so that the child has to resolve the conflict between perceiving these as two-dimensional objects and as representations of a three-dimensional visual setting. The child does so "by assigning a privileged, autonomous status to pictures as visual objects" (1978: 5). The arbitrariness of the picture, its decontextualization, and its existence as something which cannot be grasped and manipulated like its "real" counterparts is learned through the routines of structured interactional dialogue in which mother and child take turns playing a labelling game. In a "scaffolding" dialogue (cf. Cazden 1979), the mother points and asks "What is x?" and the child vocalizes and/or gives a nonverbal signal of attention. The mother then provides verbal feedback and a label. Before the age of two, the child is socialized into the "initiation-reply-evaluation sequences" repeatedly described as the central structural feature of classroom lessons (e.g., Sinclair and Coulthard 1975; Griffin and Humphry 1978; Mehan 1979). Teachers ask their students questions which have answers prespecified in the mind of the teacher. Students respond, and teachers provide

feedback, usually in the form of an evaluation. Training in ways of responding to this pattern begins very early in the labelling activities of mainstream parents and children.

Maintown ways

This patterning of "incipient literacy" (Scollon and Scollon 1979) is similar in many ways to that of the families of fifteen primary-level school teachers in Maintown, a cluster of middle-class neighborhoods in a city of the Piedmont Carolinas. These families (all of whom identify themselves as "typical," "middle-class," or "mainstream,") had preschool children, and the mother in each family was either teaching in local public schools at the time of the study (early 1970s), or had taught in the academic year preceding participation in the study. Through a research dyad approach, using teacher-mothers as researchers with the ethnographer, the teacher-mothers audio-recorded their children's interactions in their primary network - mothers, fathers, grandparents, maids, siblings, and frequent visitors to the home. Children were expected to learn the following rules in literacy events in these nuclear households:

- (1) As early as six months of age, children *give attention to books and information derived from books*. Their rooms contain bookcases and are decorated with murals, bedspreads, mobiles, and stuffed animals which represent characters found in books. Even when these characters have their origin in television programs, adults also provide books which either repeat or extend the characters' activities on television.
- (2) Children, from the age of six months, *acknowledge questions about books*. Adults expand nonverbal responses and vocalizations from infants into fully formed grammatical sentences. When children begin to verbalize about the contents of books, adults extend their questions from simple requests for labels (What's that? Who's that?) to ask about the attributes of these items (What does the doggie say? What color is the ball?)
- (3) From the time they start to talk, children *respond to conversational allusions to the content of books; they act as question-answerers who have a knowledge of books*. For example, a fuzzy black dog on the street is likened by an adult to Blackie in a child's book: "Look, there's a Blackie. Do you think *he's* looking for a boy?" Adults strive to maintain with children a running commentary on any event or object which can be book-related, thus modelling for them the extension of familiar items and events from books to new situational contexts.
- (4) Beyond two years of age, children *use their knowledge of what books do to legitimate their departures from "truth."* Adults encourage and reward "book talk," even when it is not directly relevant to an ongoing conversation. Children are allowed to suspend reality, to tell stories which are not true, to ascribe fiction-like features to everyday objects.

- (5) Preschool children *accept book and book-related activities as entertainment*. When preschoolers are "captive audiences" (e.g., waiting in a doctor's office, putting a toy together, or preparing for bed), adults reach for books. If there are no books present, they talk about other objects as though they were pictures in books. For example, adults point to items, and ask children to name, describe, and compare them to familiar objects in their environment. Adults often ask children to state their likes or dislikes, their view of events, and so forth, at the end of the captive audience period. These affective questions often take place while the next activity is already underway (e.g., moving toward the doctor's office, putting the new toy away, or being tucked into bed), and adults do not insist on answers.
- (6) Preschoolers *announce their own factual and fictive narratives* unless they are given in response to direct adult elicitation. Adults judge as most acceptable those narratives which open by orienting the listener to setting and main character. Narratives which are fictional are usually marked by formulaic openings, a particular prosody, or the borrowing of episodes in story books.
- (7) When children are about three years old, adults discourage the highly interactive participative role in bookreading children have hitherto played and children *listen and wait as an audience*. No longer does either adult or child repeatedly break into the story with questions and comments. Instead, children must listen, store what they hear, and on cue from the adult, answer a question. Thus, children begin to formulate "practice" questions as they wait for the break and the expected formulaic-type questions from the adult. It is at this stage that children often choose to "read" to adults rather than to be read to.

A pervasive pattern of all these features is the authority which books and book-related activities have in the lives of both the preschoolers and members of their primary network. Any initiation of a literacy event by a preschooler makes an interruption, an untruth, a diverting of attention from the matter at hand (whether it be an uneaten plate of food, a messy room, or an avoidance of going to bed) acceptable. Adults jump at openings their children give them for pursuing talk about books and reading.

In this study, writing was found to be somewhat less acceptable as an "any-time activity," since adults have rigid rules about times, places, and materials for writing. The only restrictions on bookreading concern taking good care of books: they should not be wet, torn, drawn on, or lost. In their talk to children about books, and in their explanations of why they buy children's books, adults link school success to "learning to love books," "learning what books can do for you," and "learning to entertain yourself and to work independently." Many of the adults also openly expressed a fascination with children's books "nowa-

days." They generally judged them as more diverse, wide-ranging, challenging, and exciting than books they had as children.

The mainstream pattern. A close look at the way bedtime story routines in Maintown taught children how to take meaning from books raises a heavy sense of the familiar in all of us who have acquired mainstream habits and values. Throughout a lifetime, any school-successful individual moves through the same processes described above thousands of times. Reading for comprehension involves an internal replaying of the same types of questions adults ask children of bedtime stories. We seek *what-explanations*, asking what the topic is, establishing it as predictable and recognizing it in new situational contexts by classifying and categorizing it in our mind with other phenomena. The *what-explanation* is replayed in learning to pick out topic sentences, write outlines, and answer standardized tests which ask for the correct titles to stories, and so on. In learning to read in school, children move through a sequence of skills designed to teach *what-explanations*. There is a tight linear order of instruction which recapitulates the bedtime story pattern of breaking down the story into small bits of information and teaching children to handle sets of related skills in isolated sequential hierarchies.

In each individual reading episode in the primary years of schooling, children must move through *what-explanations* before they can provide *reason-explanations* or *affective commentaries*. Questions about why a particular event occurred or why a specific action was right or wrong come at the end of primary-level reading lessons, just as they come at the end of bedtime stories. Throughout the primary grade levels, *what-explanations* predominate, *reason-explanations* come with increasing frequency in the upper grades, and *affective comments* most often come in the extra-credit portions of the reading workbook or at the end of the list of suggested activities in text books across grade levels. This sequence characterizes the total school career. High school freshmen who are judged poor in compositional and reading skills spend most of their time on *what-explanations* and practice in advanced versions of bedtime story questions and answers. They are given little or no chance to use *reason-giving explanations* or assessments of the actions of stories. *Reason-explanations* result in configurational rather than hierarchical skills, are not predictable, and thus do not present content with a high degree of redundancy. *Reason-giving explanations* tend to rely on detailed knowledge of a specific domain. This detail is often unpredictable to teachers, and is not as highly valued as is knowledge which covers a particular area of knowledge with less detail but offers opportunity for extending the knowledge to larger and related concerns. For example, a primary-level student whose father owns a turkey farm may respond with *reason-explanations* to a story about a turkey. His knowledge is intensive and covers details perhaps not known to the teacher and not judged as relevant to the story. The knowledge is unpredictable and questions about it do not continue to repeat the common core

of content knowledge of the story. Thus such configured knowledge is encouraged only for the "extras" of reading - an extra-credit oral report or a creative picture and story about turkeys. This kind of knowledge is allowed to be used once the hierarchical what-explanations have been mastered and displayed in a particular situation and, in the course of one's academic career, only when one has shown full mastery of the hierarchical skills and subsets of related skills which underlie what-explanations. Thus, reliable and successful participation in the ways of taking from books that teachers view as natural must, in the usual school way of doing things, precede other ways of taking from books.

These various ways of taking are sometimes referred to as "cognitive styles" or "learning styles." It is generally accepted in the research literature that they are influenced by early socialization experiences and correlated with such features of the society in which the child is reared as social organization, reliance on authority, male-female roles, and so on. These styles are often seen as two contrasting types, most frequently termed "field independent-field dependent" (Witkin et al. 1966) or "analytic-relational" (Kagan, Sigel, and Moss 1963; Cohen 1968, 1969, 1971). The analytic field-independent style is generally presented as that which correlates positively with high achievement and general academic and social success in school. Several studies discuss ways in which this style is played out in school - in preferred ways of responding to pictures and written text and selecting from among a choice of answers to test items.

Yet, we know little about how behaviors associated with either of the dichotomized cognitive styles (field-dependent/relational and field-independent/analytic) were learned in early patterns of socialization. To be sure, there are vast individual differences which may cause an individual to behave so as to be categorized as having one or the other of these learning styles. But much of the literature on learning styles suggests a preference for one or the other is learned in the social group in which the child is reared and in connection with other ways of behaving found in that culture. But how is a child socialized into an analytic/field-independent style? What kinds of interactions does he enter into with his parents and the stimuli of his environment which contribute to the development of such a style of learning? How do these interactions mold selective attention practices such as "sensitivity to parts of objects," "awareness of obscure, abstract, nonobvious features," and identification of "abstractions based on the features of items" (Cohen 1969: 844-45)? Since the predominant stimuli used in school to judge the presence and extent of these selective attention practices are written materials, it is clear that the literacy orientation of preschool children is central to these questions.

The foregoing descriptions of how Maintown parents socialize their children into a literacy orientation fit closely those provided by Scollon and Scollon for their own child Rachel. Through similar practices, Rachel was "literate before she learned to read" (1979: 6). She knew, before the age of two, how to focus on a book and not on herself. Even when she told a story about herself, she moved

herself out of the text and saw herself as author, as someone different from the central character of her story. She learned to pay close attention to the parts of objects, to name them, and to provide a running commentary on features of her environment. She learned to manipulate the contexts of items, her own activities, and language to achieve book-like, decontextualized, repeatable effects (such as puns). Many references in her talk were from written sources; others were modelled on stories and questions about these stories. The substance of her knowledge, as well as her ways of framing knowledge orally, derived from her familiarity with books and bookreading. No doubt, this development began by labelling in the dialogue cycles of reading (Ninio and Bruner 1978), and it will continue for Rachel in her preschool years along many of the same patterns described by Cochran-Smith (1981) for a mainstream nursery school. There teacher and students negotiated story-reading through the scaffolding of teachers' questions and running commentaries which replayed the structure and sequence of story-reading learned in their mainstream homes.

Close analyses of how mainstream school-oriented children come to learn to take from books at home suggest that such children learn not only how to take meaning from books, but also how to talk about it. In doing the latter, they repeatedly practice routines which parallel those of classroom interaction. By the time they enter school, they have had continuous experience as information-givers; they have learned how to perform in those interactions which surround literate sources throughout school. They have had years of practice in interaction situations that are the heart of reading - both learning to read and reading to learn in school. They have developed habits of performing which enable them to run through the hierarchy of preferred knowledge about a literate source and the appropriate sequence of skills to be displayed in showing knowledge of a subject. They have developed ways of decontextualizing and surrounding with explanatory prose the knowledge gained from selective attention to objects.

They have learned to listen, waiting for the appropriate cue which signals it is their turn to show off this knowledge. They have learned the rules for getting certain services from parents (or teachers) in the reading interaction (Merritt 1979). In nursery school, they continue to practice these interaction patterns in a group rather than in a dyadic situation. There they learn additional signals and behaviors necessary for getting a turn in a group, and responding to a central reader and to a set of centrally defined reading tasks. In short, most of their waking hours during the preschool years have enculturated them into: (1) all those habits associated with what-explanations, (2) selective attention to items of the written text, and (3) appropriate interactional styles for orally displaying all the know-how of their literate orientation to the environment. This learning has been finely tuned and its habits are highly interdependent. Patterns of behaviors learned in one setting or at one stage reappear again and again as these children learn to use oral and written language in literacy events and to bring their knowledge to bear in school-acceptable ways.

ALTERNATIVE PATTERNS OF LITERACY EVENTS

But what corresponds to the mainstream pattern of learning in communities that do not have this finely tuned, consistent, repetitive, and continuous pattern of training? Are there ways of behaving which achieve other social and cognitive aims in other sociocultural groups?

The data below are summarized from an ethnography of two communities - Roadville and Trackton - located only a few miles from Maintown's neighborhoods in the Piedmont Carolinas. Roadville is a white working-class community of families steeped for four generations in the life of the textile mill. Trackton is a working-class black community whose older generations have been brought up on the land, either farming their own land or working for other landowners. However, in the past decade, they have found work in the textile mills. Children of both communities are unsuccessful in school; yet both communities place a high value on success in school, believing earnestly in the personal and vocational rewards school can bring and urging their children "to get ahead" by doing well in school. Both Roadville and Trackton are literate communities in the sense that the residents of each are able to read printed and written materials in their daily lives, and on occasion they produce written messages as part of the total pattern of communication in the community. In both communities, children go to school with certain expectancies of print and, in Trackton especially, children have a keen sense that reading is something one does to learn something one needs to know (Heath 1980). In both groups, residents turn from spoken to written uses of language and vice versa as the occasion demands, and the two modes of expression seem to supplement and reinforce each other. Nonetheless there are radical differences between the two communities in the ways in which children and adults interact in the preschool years; each of the two communities also differs from Maintown. Roadville and Trackton view children's learning of language from two radically different perspectives: in Trackton, children "learn to talk," in Roadville, adults "teach them how to talk."

Roadville

In Roadville, babies are brought home from the hospital to rooms decorated with colorful, mechanical, musical, and literacy-based stimuli. The walls are decorated with pictures based on nursery rhymes, and from an early age, children are held and prompted to "see" the wall decorations. Adults recite nursery rhymes as they twirl the mobile made of nursery-rhyme characters. The items of the child's environment promote exploration of colors, shapes, and textures: a stuffed ball with sections of fabrics of different colors and textures is in the crib; stuffed animals vary in texture, size, and shape. Neighbors, friends from church, and relatives come to visit and talk to the baby, and about him to those who will listen. The baby is fictionalized in the talk to him: "But this baby wants to go to sleep, doesn't he? Yes, see those little eyes gettin' heavy." As the child grows

older, adults pounce on word-like sounds and turn them into "words," repeating the "words," and expanding them into well-formed sentences. Before they can talk, children are introduced to visitors and prompted to provide all the expected politeness formulas, such as "Bye-bye," "Thank you," and so forth. As soon as they can talk, children are reminded about these formulas, and book or television characters known to be "polite" are involved as reinforcement.

In each Roadville home, preschoolers first have cloth books, featuring a single object on each page. They later acquire books which provide sounds, smells, and different textures or opportunities for practicing small motor skills (closing zippers, buttoning buttons, etc.). A typical collection for a two-year-old consisted of a dozen or so books - eight featured either the alphabet or numbers, others were books of nursery rhymes, simplified Bible stories, or "real-life" stories about boys and girls (usually taking care of their pets or exploring a particular feature of their environment). Books based on Sesame Street characters were favorite gifts for three- and four-year-olds.

Reading and reading-related activities occur most frequently before naps or at bedtime in the evening. Occasionally an adult or older child will read to a fussy child while the mother prepares dinner or changes a bed. On weekends, fathers sometimes read with their children for brief periods of time, but they generally prefer to play games or play with the children's toys in their interactions. The following episode illustrates the language and social interactional aspects of these bedtime events; the episode takes place between Wendy (2;3 at the time of this episode) and Aunt Sue who is putting her to bed.

[Aunt Sue (AS) picks up book, while Wendy (W) crawls about the floor, ostensibly looking for something]

W: uh uh

AS: Wendy, we're gonna read, uh, read this story, come on, hop up here on this bed.

[Wendy climbs up on the bed, sits on top of the pillow, and picks up her teddy bear]

[Aunt Sue opens book, points to puppy]

AS: Do you remember what this book is about? See the puppy? What does the puppy do?

[Wendy plays with the bear, glancing occasionally at pages of the book, as Aunt Sue turns. Wendy seems to be waiting for something in the book]

AS: See the puppy?

[Aunt Sue points to the puppy in the book and looks at Wendy to see if she is watching]

W: uh huh, yea, yes ma'am

AS: Puppy sees the ant, he's a li'l

[Wendy drops the bear and turns to book.]

fellow. Can you see that ant? Puppy has a little ball.

- W: ant bite puppy
[Wendy points to ant, pushing hard on the book]
- AS: No, the ant won't bite the puppy, the [turns page] puppy wants to play with the ant, see?
[Wendy tries to turn the page back; AS won't let her, and Wendy starts to squirm and fuss]
- AS: Look here, here's someone else, the puppy
[Wendy climbs down off the bed and gets another book]
- W: read this one
- AS: Okay, you get back up here now. [Wendy gets back on bed]
- AS: This book is your ABC book. See the A, look, here, on your spread, there's an A. You find the A. [The second book is a cloth book, old and tattered, and long a favorite of Wendy's. It features an apple on the cover, and its front page has an ABC block and ball. Through the book, there is a single item on each page, with a large representation of the first letter of the word commonly used to name the item. As AS turns the page, Wendy begins to crawl about on her quilt, which shows ABC blocks interspersed with balls and apples. Wendy points to each of the A's on the blanket and begins talking to herself. AS reads the book, looks up, and sees Wendy pointing to the A's in her quilt.]
- AS: That's an A, can you find the A on your blanket?
- W: there it is, this one, there's the hole too. [pokes her finger through a place where the threads have broken in the quilting]
- AS: [AS points to ball in book] Stop that, find the ball, see, here's another ball.

This episode characterizes the early orientation of Roadville children to the written word. Bookreading time focuses on letters of the alphabet, numbers, names of basic items pictured in books, and simplified retellings of stories in the words of the adult. If the content or story plot seems too complicated for the child, the adult tells the story in short, simple sentences, frequently laced with requests that the child give what-explanations.

Wendy's favorite books are those with which she can participate: that is, those to which she can answer, provide labels, point to items, give animal sounds, and "read" the material back to anyone who will listen to her. She memorizes the passages and often knows when to turn the pages to show that she is "reading." She holds the book in her lap, starts at the beginning, and often reads the title, "Puppy."

Adults and children use either the title of the book or phrases such as "the book about a puppy" to refer to reading material. When Wendy acquires a new book, adults introduce the book with phrases such as "This is a book about a duck, a little yellow duck. See the duck. Duck goes quack quack." On introducing a book, adults sometimes ask the child to recall when they have seen a "real"

specimen such as that one treated in the book: "Remember the duck on the College lake?" The child often shows no sign of linking the yellow fluffy duck in the book with the large brown and grey mallards on the lake, and the adult makes no efforts to explain that two such disparate looking objects go by the same name.

As Wendy grows older, she wants to "talk" during the long stories, Bible stories, and carry out the participation she so enjoyed with the alphabet books. However, by the time she reaches three and a half, Wendy is restrained from such wide-ranging participation. When she interrupts, she is told:

Wendy, stop that, you be quiet when someone is reading to you. You listen; now sit still and be quiet.

Often Wendy immediately gets down and runs away into the next room saying "no, no." When this happens, her father goes to get her, pats her bottom, and puts her down hard on the sofa beside him. "Now you're gonna learn to listen." During the third and fourth years, this pattern occurs more and more frequently; only when Wendy can capture an aunt who does not visit often does she bring out the old books and participate with them. Otherwise, parents, Aunt Sue, and other adults insist that she be read a story and that she "listen" quietly.

When Wendy and her parents watch television, eat cereal, visit the grocery store, or go to church, adults point out and talk about many types of written material. On the way to the grocery, Wendy (3;8) sits in the backseat, and when her mother stops at a corner, Wendy says "Stop." Her mother says "Yes, that's a stop sign." Wendy has, however, misread a yield sign as *stop*. Her mother offers no explanation of what the actual message on the sign is, yet when she comes to the sign, she stops to yield to an oncoming car. Her mother, when asked why she had not given Wendy the word "yield," said it was too hard, Wendy would not understand, and "it's not a word we use like *stop*."

Wendy recognized animal cracker boxes as early as 10 months, and later, as her mother began buying other varieties, Wendy would see the box in the grocery store and yell "Cook cook." Her mother would say, "Yes, those are cookies. Does Wendy want a cookie?" One day Wendy saw a new type of cracker box, and screeched "Cook cook." Her father opened the box and gave Wendy a cracker and waited for her reaction. She started the "cookie," then took it to her mother, saying "You eat." The mother joined in the game and said "Don't you want your *cookie*?" Wendy said "No cookie. You eat." "But Wendy, it's a cookie box, see?", and her mother pointed to the C of *crackers* on the box. Wendy paid no attention and ran off into another room.

In Roadville's literacy events, the rules for cooperative discourse around print are repeatedly practiced, coached, and rewarded in the preschool years. Adults in Roadville believe that instilling in children the proper use of words and understanding of the meaning of the written word are important for both their educational and religious success. Adults repeat aspects of the learning of literacy

events they have known as children. In the words of one Roadville parent: "It was then that I began to learn . . . when my daddy kept insisting I *read* it, say it right. It was then that I *did* right, in his view."

The path of development for such performance can be described in three overlapping stages. In the first, children are introduced to discrete bits and pieces of books - separate items, letters of the alphabet, shapes, colors, and commonly represented items in books for children (apple, baby, ball, etc.). The latter are usually decontextualized, not pictured in their ordinary contexts, and they are represented in two-dimensional flat line drawings. During this stage, children must participate as predictable information-givers and respond to questions that ask for specific and discrete bits of information about the written matter. In these literacy events, specific features of the two-dimensional items in books which are different from their "real" counterparts are not pointed out. A ball in a book is flat; a duck in a book is yellow and fluffy; trucks, cars, dogs, and trees talk in books. No mention is made of the fact that such features do not fit these objects in reality. Children are not encouraged to move their understanding of books into other situational contexts or to apply it in their general knowledge of the world about them.

In the second stage, adults demand an acceptance of the power of print to entertain, inform, and instruct. When Wendy could no longer participate by contributing her knowledge at any point in the literacy event, she learned to recognize bookreading as a performance. The adult exhibited the book to Wendy: she was to be entertained, to learn from the information conveyed in the material, and to remember the book's content for the sequential followup questioning, as opposed to ongoing cooperative participatory questions.

In the third stage, Wendy was introduced to preschool workbooks which provided story information and was asked questions or provided exercises and games based on the content of the stories or pictures. Follow-the-number coloring books and preschool "push-out and paste" workbooks on shapes, colors, and letters of the alphabet reinforced repeatedly that the written word could be taken apart into small pieces and one item linked to another by following rules. She had practice in the linear, sequential nature of books: begin at the beginning, stay in the lines for coloring, draw straight lines to link one item to another, write your answers on lines, keep your letters straight, match the cutout letter to diagrams of letter shapes.

The differences between Roadville and Maintown are substantial. Roadville adults do not extend either the content or the habits of literacy events beyond bookreading. They do not, upon seeing an item or event in the real world, remind children of a similar event in a book and launch a running commentary on similarities and differences. When a game is played or a chore done, adults do not use literate sources. Mothers cook without written recipes most of the time; if they use a recipe from a written source, they do so usually only after confirmation and alteration by friends who have tried the recipe. Directions to games are

read, but not carefully followed, and they are not talked about in a series of questions and answers which try to establish their meaning. Instead, in the putting together of toys or the playing of games, the abilities or preferences of one party prevail. For example, if an adult knows how to put a toy together, he does so; he does not talk about the process, refer to the written material and "translate" for the child, or try to sequence steps so the child can do it.³ Adults do not talk about the steps and procedures of *how* to do things; if a father wants his preschooler to learn to hold a miniature bat or throw a ball, he says "Do it this way." He does not break up "this way" into such steps as "Put your fingers around here," "Keep your thumb in this position," "Never hold it above this line." Over and over again, adults do a task and children observe and try it, being reinforced only by commands such as "Do it like this," "Watch that thumb."

Adults at tasks do not provide a running verbal commentary on what they are doing. They do not draw the attention of the child to specific features of the sequences of skills or the attributes of items. They do not ask questions of the child, except questions which are directive or scolding in nature, ("Did you bring the ball?" "Didn't you hear what I said?"). Many of their commands contain idioms which are not explained: "Put it up," or "Put that away now" (meaning to put it in the place where it usually belongs), or "Loosen up," said to a four-year-old boy trying to learn to bat a ball. Explanations which move beyond the listing of names of items and their features are rarely offered by adults. Children do not ask questions of the type "But I don't understand. What is that?" They appear willing to keep trying, and if there is ambiguity in a set of commands, they ask a question such as "You want me to do this?" (demonstrating their current efforts), or they try to find a way of diverting attention from the task at hand.

Both boys and girls during their preschool years are included in many adult activities, ranging from going to church to fishing and camping. They spend a lot of time observing and asking for turns to try specific tasks, such as putting a worm on the hook or cutting cookies. Sometimes adults say "No, you're not old enough." But if they agree to the child's attempt at the task, they watch and give directives and evaluations: "That's right, don't twist the cutter." "Turn like this." "Don't try to scrape it up now, let me do that." Talk about the task does not segment its skills and identify them, nor does it link the particular task or item at hand to other tasks. Reason-explanations such as "If you twist the cutter, the cookies will be rough on the edge," are rarely given, or asked for.

Neither Roadville adults nor children shift the context of items in their talk. They do not tell stories which fictionalize themselves or familiar events. They reject Sunday School materials which attempt to translate Biblical events into a modern-day setting. In Roadville, a story must be invited or announced by someone other than the storyteller, and only certain community members are designated good storytellers. A story is recognized by the group as a story about one and all. It is a true story, an actual event which occurred to either the

storyteller or to someone else present. The marked behavior of the storyteller and audience alike is seen as exemplifying the weaknesses of all and the need for persistence in overcoming such weaknesses. The sources of stories are personal experience. They are tales of transgressions which make the point of reiterating the expected norms of behavior of man, woman, fisherman, worker, and Christian. They are true to the facts of the event.

Roadville parents provide their children with books; they read to them and ask questions about the books' contents. They choose books which emphasize nursery rhymes, alphabet learning, animals, and simplified Bible stories, and they require their children to repeat from these books and to answer formulaic questions about their contents. Roadville adults also ask questions about oral stories which have a point relevant to some marked behavior of a child. They use proverbs and summary statements to remind their children of stories and to call on them for simple comparisons of the stories' contents to their own situations. Roadville parents coach children in their telling of a story, forcing them to tell about an incident as it has been pre-composed or pre-scripted in the head of the adult. Thus, in Roadville, children come to know a story as either an accounting from a book, or a factual account of a real event in which some type of marked behavior occurred and there is a lesson to be learned. Any fictionalized account of a real event is viewed as a *lie*; reality is better than fiction. Roadville's church and community life admit no story other than that which meets the definition internal to the group. Thus children cannot decontextualize their knowledge or fictionalize events known to them and shift them about into other frames.

When these children go to school they perform well in the initial stages of each of the three early grades. They often know portions of the alphabet, some colors and numbers, can recognize their names, and tell someone their address and their parents' names. They will sit still and listen to a story, and they know how to answer questions asking for what-explanations. They do well in reading workbook exercises which ask for identification of specific portions of words, items from the story, or the linking of two items, letters, or parts of words on the same page. When the teacher reaches the end of story-reading or the reading circle and asks questions such as "What did you like about the story?", relatively few Roadville children answer. If asked questions such as "What would you have done if you had been Billy [a story's main character]?", Roadville children most frequently say "I don't know" or shrug their shoulders.

Near the end of each year, and increasingly as they move through the early primary grades, Roadville children can handle successfully the initial stages of lessons. But when they move ahead to extra-credit items or to activities considered more advanced and requiring more independence, they are stumped. They turn frequently to teachers asking "Do you want me to do this? What do I do here?" If asked to write a creative story or tell it into a tape recorder, they retell stories from books; they do not create their own. They rarely provide emotional or personal commentary on their accounting of real events or book stories. They

are rarely able to take knowledge learned in one context and shift it to another; they do not compare two items or events and point out similarities and differences. They find it difficult either to hold one feature of an event constant and shift all others or to hold all features constant but one. For example, they are puzzled by questions such as "What would have happened if Billy had not told the policemen what happened?" They do not know how to move events or items out of a given frame. To a question such as "What habits of the Hopi Indians might they be able to take with them when they move to a city?", they provide lists of features of life of the Hopi on the reservation. They do not take these items, consider their appropriateness in an urban setting, and evaluate the hypothetical outcome. In general, they find this type of question impossible to answer, and they do not know how to ask teachers to help them take apart the questions to figure out the answers. Thus their initial successes in reading, being good students, following orders, and adhering to school norms of participating in lessons begin to fall away rapidly about the time they enter the fourth grade. As the importance and frequency of questions and reading habits with which they are familiar decline in the higher grades, they have no way of keeping up or of seeking help in learning what it is they do not even know they don't know.

Trackton

Babies in Trackton come home from the hospital to an environment which is almost entirely human. There are no cribs, car beds, or car seats, and only an occasional high chair or infant seat. Infants are held during their waking hours, occasionally while they sleep, and they usually sleep in the bed with parents until they are about two years of age. They are held, their faces fondled, their cheeks pinched, and they eat and sleep in the midst of human talk and noise from the television, stereo, and radio. Encapsuled in an almost totally human world, they are in the midst of constant human communication, verbal and nonverbal. They literally feel the body signals of shifts in emotion of those who hold them almost continuously; they are talked about and kept in the midst of talk about topics that range over any subject. As children make cooing or babbling sounds, adults refer to this as "noise," and no attempt is made to interpret these sounds as words or communicative attempts on the part of the baby. Adults believe they should not have to depend on their babies to tell them what they need or when they are uncomfortable; adults know, children only "come to know."

When a child can crawl and move about on his own, he plays with the household objects deemed safe for him - pot lids, spoons, plastic food containers. Only at Christmastime are there special toys for very young children; these are usually trucks, balls, doll babies, or plastic cars, but rarely blocks, puzzles, or books. As children become completely mobile, they demand ride toys or electronic and mechanical toys they see on television. They never request nor do they receive manipulative toys, such as puzzles, blocks, take-apart toys or literacy-based items, such as books or letter games.

Adults read newspapers, mail, calendars, circulars (political and civic-events related), school materials sent home to parents, brochures advertising new cars, television sets, or other products, and the Bible and other church-related materials. There are no reading materials especially for children (with the exception of children's Sunday School materials), and adults do not sit and read to children. Since children are usually left to sleep whenever and wherever they fall asleep, there is no bedtime or naptime as such. At night, they are put to bed when adults go to bed or whenever the person holding them gets tired. Thus, going to bed is not framed in any special routine. Sometimes in a play activity during the day, an older sibling will read to a younger child, but the latter soon loses interest and squirms away to play. Older children often try to "play school" with younger children, reading to them from books and trying to ask questions about what they have read. Adults look on these efforts with amusement and do not try to convince the small child to sit still and listen.

Signs from very young children of attention to the nonverbal behaviors of others are rewarded by extra fondling, laughter, and cuddling from adults. For example, when an infant shows signs of recognizing a family member's voice on the phone by bouncing up and down in the arms of the adult who is talking on the phone, adults comment on this to others present and kiss and nudge the child. Yet when children utter sounds or combinations of sounds which could be interpreted as words, adults pay no attention. Often by the time they are twelve months old, children approximate words or phrases of adults' speech; adults respond by laughing or giving special attention to the child and crediting him with "sounding like" the person being imitated. When children learn to walk and imitate the walk of members of the community, they are rewarded by comments on their activities: "He walks just like Toby when he's tuckered out."

Children between the ages of twelve and twenty-four months often imitate the tune or "general Gestalt" (Peters 1977) of complete utterances they hear around them. They pick up and repeat chunks (usually the ends) of phrasal and clausal utterances of speakers around them. They seem to remember fragments of speech and repeat these without active production. In this first stage of language learning, the repetition stage, they imitate the intonation contours and general shaping of the utterances they repeat. Lem 1;2 in the following example illustrates this pattern.

- Mother: [talking to neighbor on porch while Lem plays with a truck on the porch nearby] But they won't call back, won't happen =
 Lem: =call back
 Neighbor: Sam's going over there Saturday, he'll pick up a form =
 Lem: =pick up on, pick up on [Lem here appears to have heard *form* as *on*]

The adults pay no attention to Lem's "talk," and their talk, in fact, often overlaps his repetitions.

In the second stage, repetition with variation, Trackton children manipulate pieces of conversation they pick up. They incorporate chunks of language from others into their own ongoing dialogue, applying productive rules, inserting new nouns and verbs for those used in the adults' chunks. They also play with rhyming patterns and varying intonation contours.

Mother: She went to the doctor again.

Lem (2;2): [in a sing-song fashion] went to de doctor, doctor, tractor, dis my tractor, doctor on a tractor, went to de doctor.

Lem creates a monologue, incorporating the conversation about him into his own talk as he plays. Adults pay no attention to his chatter unless it gets so noisy as to interfere with their talk.

In the third stage, participation, children begin to enter the ongoing conversations about them. They do so by attracting the adult's attention with a tug on the arm or pant leg, and they help make themselves understood by providing nonverbal reinforcements to help recreate a scene they want the listener to remember. For example, if adults are talking, and a child interrupts with seemingly unintelligible utterances, the child will make gestures, extra sounds, or act out some outstanding features of the scene he is trying to get the adult to remember. Children try to create a context, a scene, for the understanding of their utterance.

This third stage illustrates a pattern in the children's response to their environment and their ways of letting others know their knowledge of the environment. Once they are in the third stage, their communicative efforts are accepted by community members, and adults respond directly to the child, instead of talking to others about the child's activities as they have done in the past. Children continue to practice for conversational participation by playing, when alone, both parts of dialogues, imitating gestures as well as intonation patterns of adults. By 2;6 all children in the community can imitate the walk and talk of others in the community, or frequent visitors such as the man who comes around to read the gas meters. They can feign anger, sadness, fussing, remorse, silliness, or any of a wide range of expressive behaviors. They often use the same chunks of language for varying effects, depending on nonverbal support to give the language different meanings or cast it in a different key (Hymes 1974). Girls between three and four years of age take part in extraordinarily complex stepping and clapping patterns and simple repetitions of hand clap games played by older girls. From the time they are old enough to stand alone, they are encouraged in their participation by siblings and older children in the community. These games require anticipation and recognition of cues for upcoming behaviors, and the young girls learn to watch for these cues and to come in with the appropriate words and movements at the right time.

Preschool children are not asked for what-explanations of their environment. Instead, they are asked a preponderance of analogical questions which call for non-specific comparisons of one item, event, or person with another: "What's

that like?" Other types of questions ask for specific information known to the child but not the adults: "Where'd you get that from?" "What do you want?" "How come you did that?" (Heath 1982). Adults explain their use of these types of questions by expressing their sense of children: they are "comers," coming into their learning by experiencing what knowing about things means. As one parent of a two-year-old boy put it: "Ain't no use me tellin' 'im: learn this, learn that, what's this, what's that? He just gotta learn, gotta know; he see one thing one place one time, he know how it go, see sump'n like it again, maybe it be the same, maybe it won't." Children are expected to learn how to know when the form belies the meaning, and to know contexts of items and to use their understanding of these contexts to draw parallels between items and events. Parents do not believe they have a tutoring role in this learning; they provide the experiences on which the child draws and reward signs of their successfully coming to know.

Trackton children's early stories illustrate how they respond to adult views of them as "comers." The children learn to tell stories by drawing heavily on their abilities to render a context, to set a stage, and to call on the audience's power to join in the imaginative creation of story. Between the ages of two and four years, the children, in a monologue-like fashion, tell stories about things in their lives, events they see and hear, and situations in which they have been involved. They produce these spontaneously during play with other children or in the presence of adults. Sometimes they make an effort to attract the attention of listeners before they begin the story, but often they do not. Lem, playing off the edge of the porch, when he was about two and a half years of age, heard a bell in the distance. He stopped, looked at Nellie and Benjy, his older siblings, who were nearby and said:

Way
Far -
Now
It a church bell
Ringin'
Dey singin'
Ringin'
You hear it?
I hear it
Far
Now.

Lem had been taken to church the previous Sunday and had been much impressed by the church bell. He had sat on his mother's lap and joined in the singing, rocking to and fro on her lap, and clapping his hands. His story, which is like a poem in its imagery and line-like prosody, is in response to the current stimulus of a distant bell. As he tells the story, he sways back and forth.

This story, somewhat longer than those usually reported from other social

groups for children as young as Lem,⁴ has some features which have come to characterize fully-developed narratives or stories. It recapitulates in its verbal outline the sequence of events being recalled by the storyteller. At church, the bell rang while the people sang. In the line "It a church bell," Lem provides his story's topic, and a brief summary of what is to come. This line serves a function similar to the formulae often used by older children to open a story: "This is a story about (a church bell)." Lem gives only the slightest hint of story setting or orientation to the listener; where and when the story took place are capsuled in "Way, Far." Preschoolers in Trackton almost never hear "Once upon a time there was a _____" stories, and they rarely provide definitive orientations for their stories. They seem to assume listeners "know" the situation in which the narrative takes place. Similarly, preschoolers in Trackton do not close off their stories with formulaic endings. Lem poetically balances his opening and closing in an inclusio, beginning "Way, Far, Now." and ending "Far, Now.". The effect is one of closure, but there is no clearcut announcement of closure. Throughout the presentation of action and result of action in their stories, Trackton preschoolers invite the audience to respond or evaluate the story's actions. Lem asks "You hear it?" which may refer either to the current stimulus or to yesterday's bell, since Lem does not productively use past tense endings for any verbs at this stage in his language development.

Preschool storytellers have several ways of inviting audience evaluation and interest. They may themselves express an emotional response to the story's actions; they may have another character or narrator in the story do so often using alliterative language play; or they may detail actions and results through direct discourse or sound effects and gestures. All these methods of calling attention to the story and its telling distinguish the speech event as a story, an occasion for audience and storyteller to interact pleasantly, and not simply to hear an ordinary recounting of events or actions.

Trackton children must be aggressive in inserting their stories into an ongoing stream of discourse. Storytelling is highly competitive. Everyone in a conversation may want to tell a story, so only the most aggressive wins out. The content ranges widely, and there is "truth" only in the universals of human experience. Fact is often hard to find, though it is usually the seed of the story. Trackton stories often have no point - no obvious beginning or ending; they go on as long as the audience enjoys and tolerates the storyteller's entertainment.

Trackton adults do not separate out the elements of the environment around their children to tune their attentions selectively. They do not simplify their language, focus on single-word utterances by young children, label items or features of objects in either books or the environment at large. Instead, children are continuously contextualized, presented with almost continuous communication. From this ongoing, multiple-channeled stream of stimuli, they must themselves select, practice, and determine rules of production and structuring. For language, they do so by first repeating, catching chunks of sounds, intonation

contours, and practicing these without specific reinforcement or evaluation. But practice material and models are continuously available. Next the children seem to begin to sort out the productive rules for speech and practice what they hear about them with variation. Finally, they work their way into conversations, hooking their meanings for listeners into a familiar context by recreating scenes through gestures, special sound effects, etc. These characteristics continue in their story-poems and their participation in jump-rope rhymes. Because adults do not select out, name, and describe features of the environment for the young, children must perceive situations, determine how units of the situations are related to each other, recognize these relations in other situations, and reason through what it will take to show their correlation of one situation with another. The children can answer questions such as "What's that like?" ["It's like Doug's car"] but they can rarely name the specific feature or features which make two items or events alike. For example, in the case of saying a car seen on the street is "like Doug's car," a child may be basing the analogy on the fact that this car has a flat tire and Doug's also had one last week. But the child does not name (and is not asked to name) what is alike between the two cars.

Children seem to develop connections between situations or items not by specification of labels and features in the situations, but by configuration links. Recognition of similar general shapes or patterns of links seen in one situation and connected to another, seem to be the means by which children set scenes in their nonverbal representations of individuals, and later in their verbal chunking, then segmentation and production of rules for putting together isolated units. They do not decontextualize; instead they heavily contextualize nonverbal and verbal language. They fictionalize their "true stories," but they do so by asking the audience to identify with the story through making parallels from their own experiences. When adults read, they often do so in a group. One person, reading aloud, for example, from a brochure on a new car decodes the text, displays illustrations and photographs, and listeners relate the text's meaning to their experiences asking questions and expressing opinions. Finally, the group as a whole synthesizes the written text and the negotiated oral discourse to construct a meaning for the brochure (Heath forthcoming a).

When Trackton children go to school, they face unfamiliar types of questions which ask for what-explanations. They are asked as individuals to identify items by name, and to label features such as shape, color, size, number. The stimuli to which they are to give these responses are two-dimensional flat representations which are often highly stylized and bear little resemblance to the "real" items. Trackton children generally score in the lowest percentile range on the Metropolitan Reading Readiness tests. They do not sit at their desks and complete reading workbook pages; neither do they tolerate questions about reading materials which are structured along the usual lesson format. Their contributions are in the form of "I had a duck at my house one time." "Why'd he do that?" or they imitate the sound effects teachers may produce in stories they read to the children. By the

end of the first three primary grades, their general language arts scores have been consistently low, except for those few who have begun to adapt to and adopt some of the behaviors they have had to learn in school. But the majority not only fail to learn the content of lessons, they also do not adopt the social interactional rules for school literacy events. Print in isolation bears little authority in their world. The kinds of questions asked of reading books are unfamiliar. The children's abilities to metaphorically link two events or situations and to recreate scenes are not tapped in the school; in fact, *these abilities often cause difficulties*, because they enable children to see parallels teachers did not intend, and indeed, may not recognize until the children point them out (Heath 1978).

By the end of the lessons or by the time in their total school career when reason-explanations and affective statements call for the creative comparison of two or more situations, it is too late for many Trackton children. They have not picked up along the way the composition and comprehension skills they need to translate their analogical skills into a channel teachers can accept. They seem not to know how to take meaning from reading; they do not observe the rules of linearity in writing, and their expression of themselves on paper is very limited. Orally taped stories are often much better, but these rarely count as much as written compositions. Thus, Trackton children continue to collect very low or failing grades, and many decide by the end of the sixth grade to stop trying and turn their attention to the heavy peer socialization which usually begins in these years.

FROM COMMUNITY TO CLASSROOM

A recent review of trends in research on learning pointed out that "learning to read through using and learning from language has been less systematically studied than the decoding process" (Glaser 1979: 7). Put another way, how children learn to use language to read to learn has been less systematically studied than decoding skills. Learning how to take meaning from writing before one learns to read involves repeated practice in using and learning from language through appropriate participation in literacy events such as exhibitor/questioner and spectator/respondent dyads (Scollon and Scollon 1979) or group negotiation of the meaning of a written text. Children have to learn to select, hold, and retrieve content from books and other written or printed texts in accordance with their community's rules or "ways of taking," and the children's learning follows community paths of language socialization. In each society, certain kinds of childhood participation in literacy events may precede others, as the developmental sequence builds toward the whole complex of home and community behaviors characteristic of the society. The ways of taking employed in the school may in turn build directly on the preschool development, may require substantial adaptation on the part of the children, or may even run directly counter to aspects of the community's pattern.

At home. In *Maintown* homes, the construction of knowledge in the earliest preschool years depends in large part on labelling procedures and what-explanations. *Maintown* families, like other mainstream families, continue this kind of classification and knowledge construction throughout the child's environment and into the school years, calling it into play in response to new items in the environment and in running commentaries on old items as they compare to new ones. This pattern of linking old and new knowledge is reinforced in narrative tales which fictionalize the teller's events or recapitulate a story from a book. Thus for these children the bedtime story is simply an early link in a long chain of interrelated patterns of taking meaning from the environment. Moreover, along this chain, the focus is on the individual as respondent and cooperative negotiator of meaning from books. In particular, children learn that written language may represent not only descriptions of real events, but decontextualized logical propositions, and the occurrence of this kind of information in print or in writing legitimates a response in which one brings to the interpretation of written text selected knowledge from the real world. Moreover, readers must recognize how certain types of questions assert the priority of meanings in the written word over reality. The "real" comes into play only after prescribed decontextualized meanings; affective responses and reason-explanations follow conventional presuppositions which stand behind what-explanations.

Roadville also provides labels, features, and what-explanations, and prescribes listening and performing behaviors for preschoolers. However, *Roadville* adults do not carry on or sustain in continually overlapping and interdependent fashion the linking of ways of taking meaning from books to ways of relating that knowledge to other aspects of the environment. They do not encourage decontextualization; in fact, they proscribe it in their own stories about themselves and their requirements of stories from children. They do not themselves make analytic statements or assert universal truths, except those related to their religious faith. They lace their stories with synthetic (nonanalytic) statements which express, describe, and synthesize actual real-life materials. Things do not have to follow logically so long as they fit the past experience of individuals in the community. Thus children learn to look for a specific moral in stories and to expect that story to fit their facts of reality explicitly. When they themselves recount an event, they do the same, constructing the story of a real event according to coaching by adults who want to construct the story as they saw it.

Trackton is like neither *Maintown* nor *Roadville*. There are no bedtime stories; in fact, there are few occasions for reading to or with children specifically. Instead, during the time these activities would take place in mainstream and *Roadville* homes, *Trackton* children are enveloped in different kinds of social interactions. They are held, fed, talked about, and rewarded for nonverbal, and later verbal, renderings of events they witness. *Trackton* adults value and respond favorably when children show they have come to know how to use language to show correspondence in function, style, configuration, and positioning

between two different things or situations. Analogical questions are asked of Trackton children, although the implicit questions of structure and function these embody are never made explicit. Children do not have labels or names of attributes of items and events pointed out for them, and they are asked for reason-explanations not what-explanations. Individuals express their personal responses and recreate corresponding situations with often only a minimal adherence to the germ of truth of a story. Children come to recognize similarities of patterning, though they do not name lines, points, or items which are similar between two items or situations. They are familiar with group literacy events in which several community members orally negotiate the meaning of a written text.

At school. In the early reading stages, and in later requirements for reading to learn at more advanced stages, children from the three communities respond differently, because they have learned different methods and degrees of taking from books. In comparison to Maintown children, the habits Roadville children learned in bookreading and toy-related episodes have not continued for them through other activities and types of reinforcement in their environment. They have had less exposure to both the content of books and ways of learning from books than have mainstream children. Thus their need in schools is not necessarily for an intensification of presentation of labels, a slowing down of the sequence of introducing what-explanations in connection with bookreading. Instead they need *extension of these habits to other domains* and to opportunities for practicing habits such as producing running commentaries, creating exhibitor/questioner and spectator/respondent roles. Perhaps most important, Roadville children need to have articulated for them *distinctions in discourse strategies and structures*. Narratives of real events have certain strategies and structures; imaginary tales, flights of fantasy, and affective expressions have others. Their community's view of narrative discourse style is very narrow and demands a passive role in both creation of and response to the account of events. Moreover, these children have *to be reintroduced to a participant frame of reference to a book*. Though initially they were participants in bookreading, they have been trained into passive roles since the age of three years, and they must learn once again to be active information-givers, taking from books and linking that knowledge to other aspects of their environment.

Trackton students present an additional set of alternatives for procedures in the early primary grades. Since they usually have few of the expected "natural" skills of taking meaning from books, they must not only learn these, but also *retain their analogical reasoning practices* for use in some of the later stages of learning to read. They must *learn to adapt the creativity in language, metaphor, fictionalization, recreation of scenes and exploration of functions and settings of items they bring to school*. These children already use narrative skills highly rewarded in the upper primary grades. They distinguish a fictionalized story from

a real-life narrative. They know that telling a story can be in many ways related to play; it suspends reality, and frames an old event in a new context; it calls on audience participation to recognize the setting and participants. They must now *learn as individuals to recount factual events in a straightforward way and recognize appropriate occasions for reason-explanations and affective expressions*. Trackton children seem to have skipped learning to label, list features, and give what-explanations. Thus they need to *have the mainstream or school habits presented in familiar activities with explanations related to their own habits of taking meaning from the environment*. Such "simple," "natural" things as distinctions between two-dimensional and three-dimensional objects may need to be explained to help Trackton children learn the stylization and decontextualization which characterizes books.

To lay out in more specific detail how Roadville and Trackton's ways of knowing can be used along with those of mainstreamers goes beyond the scope of this paper. However, it must be admitted that a range of alternatives to ways of learning and displaying knowledge characterizes all highly school-successful adults in the advanced stages of their careers. Knowing more about how these alternatives are learned at early ages in different sociocultural conditions can help the school to provide opportunities for *all* students to avail themselves of these alternatives early in their school careers. For example, mainstream children can benefit from early exposure to Trackton's creative, highly analogical styles of telling stories and giving explanations, and they can add the Roadville true story with strict chronicity and explicit moral to their repertoire of narrative types.

In conclusion, if we want to understand the place of literacy in human societies and ways children acquire the literacy orientations of their communities, we must recognize two postulates of literacy and language development.

- (1) Strict dichotomization between oral and literate traditions is a construct of researchers, not an accurate portrayal of reality across cultures.
- (2) A unilinear model of development in the acquisition of language structures and uses cannot adequately account for culturally diverse ways of acquiring knowledge or developing cognitive styles.

Roadville and Trackton tell us that the mainstream type of literacy orientation is not the only type even among Western societies. They also tell us that the mainstream ways of acquiring communicative competence do not offer a universally applicable model of development. They offer proof of Hymes' assertion a decade ago that "it is impossible to generalize validly about 'oral' vs. 'literate' cultures as uniform types" (Hymes 1973: 54).

Yet in spite of such warnings and analyses of the uses and functions of writing in the specific proposals for comparative development and organization of cultural systems (cf. Basso 1974: 432), the majority of research on literacy has

focused on differences in class, amount of education, and level of civilization among groups having different literacy characteristics.

"We need, in short, a great deal of ethnography" (Hymes 1973: 57) to provide descriptions of the ways different social groups "take" knowledge from the environment. For written sources, these ways of taking may be analyzed in terms of *types of literacy events*, such as group negotiation of meaning from written texts, individual "looking things up" in reference books, writing family records in Bibles, and the dozens of other types of occasions when books or other written materials are integral to interpretation in an interaction. These must in turn be analyzed in terms of the specific *features of literacy events*, such as labelling, what-explanation, affective comments, reason-explanations, and many other possibilities. Literacy events must also be interpreted in relation to the *larger sociocultural patterns* which they may exemplify or reflect. For example, ethnography must describe literacy events in their sociocultural contexts, so we may come to understand how such patterns as time and space usage, caregiving roles, and age and sex segregation are interdependent with the types and features of literacy events a community develops. It is only on the basis of such thorough-going ethnography that further progress is possible toward understanding cross-cultural patterns of oral and written language uses and paths of development of communicative competence.

NOTES

* One of a series of invited papers commemorating a decade of *Language in Society*.

1. First presented at the Terman Conference on Teaching at Stanford University, 1980, this paper has benefitted from cooperation with M. Cochran-Smith of the University of Pennsylvania. She shares an appreciation of the relevance of Roland Barthes' work for studies of the socialization of young children into literacy; her research (1981) on the story-reading practices of a mainstream school-oriented nursery school provides a much needed detailed account of early school orientation to literacy.

2. Terms such as *mainstream* or *middle-class* cultures or social groups are frequently used in both popular and scholarly writings without careful definition. Moreover, numerous studies of behavioral phenomena (for example, mother-child interactions in language learning) either do not specify that the subjects being described are drawn from mainstream groups or do not recognize the importance of this limitation. As a result, findings from this group are often regarded as universal. For a discussion of this problem, see Chanan and Gilchrist 1974, Payne and Bennett 1977. In general, the literature characterizes this group as school-oriented, aspiring toward upward mobility through formal institutions, and providing enculturation which positively values routines of promptness, linearity (in habits ranging from furniture arrangement to entrance into a movie theatre), and evaluative and judgmental responses to behaviors which deviate from their norms.

In the United States, mainstream families tend to locate in neighborhoods and suburbs around cities. Their social interactions center not in their immediate neighborhoods, but around voluntary associations across the city. Thus a cluster of mainstream families (and not a community - which usually implies a specific geographic territory as the locus of a majority of social interactions) is the unit of comparison used here with the Trackton and Roadville communities.

3. Behind this discussion are findings from cross-cultural psychologists who have studied the links between verbalization of task and demonstration of skills in a hierarchical sequence, e.g., Childs and Greenfield 1980; see Goody 1979 on the use of questions in learning tasks unrelated to a familiarity with books.

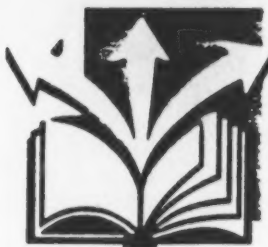
4. Cf. Umiker-Sebeok's (1979) descriptions of stories of mainstream middle-class children, ages 3-5 and Sutton-Smith 1981.

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RESEARCH
INTO
PRACTICE

Teaching Mathematics and Thinking

One afternoon, eleven-year-old Michael stopped by the home of an adult friend and found her nearly buried in decorating books, charts, and samples. Michael's sudden appearance at the door was a welcome sight, and he was asked to assist his friend in the process of decorating her home office. Although quite sure he knew little about interior decorating, Michael agreed to lend a hand. The friends began to measure the room and calculate the areas of the ceiling, walls, and floor. They looked at wallpaper swatch books, paint-color charts, and rug samples from various manufacturers and discussed the differences in price, the expected coverage per gallon of paint and roll of wallpaper, and the relative quality and ease of upkeep for different products. One style of wallpaper they liked had a horizontal stripe and required

matching. After approximating how many rolls of striped wallpaper they would need to buy, they performed a similar approximation for a design that did not require matching. They looked at carpet samples, discussed the relative merits of light and dark colors and various styles, and considered the issues of cost versus quality with respect to durability and stain resistance. Finally, they selected a set of materials to complete the decorating project based on cost, product quality, maintenance required, and personal preference. After helping his friend with this task for several hours, Michael departed for his home and his dinner.

In a conversation with Michael the next day, it became clear to the adult friend that Michael saw little relationship between the decorating task and the concept of area as he had studied it in school. In school, he had memorized the appropriate vocabulary and the rules for calculating areas of certain figures, and he had practiced applying the rules to a large number of problems presented in the textbook and on dittoed sheets. His school experience, however, had not revealed a connection between the concept of area and the kinds of interesting and challenging questions that were being considered in the decorating task.

Research on Teaching Mathematics and Thinking

Unfortunately, Michael's view of mathematics—as a subject not con-

nected to interesting thinking—is all too common. On the basis of their school experience, too many students adopt the view that mathematics is a dry and dusty subject. Results from the fourth mathematics assessment of the National Assessment of Educational Progress (NAEP) indicate that the majority of seventh-grade students view mathematics as rule based and noncreative, and many feel that learning mathematics is mostly memorizing (Kouba et al. 1988). Given these responses, it is not surprising that these students performed so poorly on those NAEP problems involving mathematical reasoning, non-routine situations, or multiple steps in the solution. Carpenter et al. (1988) argued that the NAEP results demonstrate that a greater emphasis must be placed on helping students become better problem solvers who can communicate and reason about mathematics.

Many would argue that the poor performance of students on mathematics problems requiring more than the routine application of a simple procedure is the direct result of excessive instructional attention to low-level knowledge and rules to be memorized. Students are taught to calculate with numbers but not to think in numerical quantities. This emphasis on basic skills is due to a pervasive educational belief that low-level knowledge and skills, those that require little or no independent thinking and judgment, must be taught and learned before high-level thinking can be developed.

The accumulated mass of evidence from the past few decades of cognitively oriented research on mathemat-

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Preparation of this article was supported in part by a grant from the Ford Foundation (grant number 890-0572) to the first author for the QUASAR (Quantitative Understanding: Amplifying Students' Achievement and Reasoning) project. Any opinions expressed herein are those of the authors and do not necessarily reflect the views of the Ford Foundation.

ics learning and problem solving challenges this belief. For example, evidence (e.g., Carpenter [1985]) has demonstrated that children who lack certain presumed prerequisite low-level skills are often capable of performing high-level tasks successfully using reasoning and problem solving. Furthermore, the process of acquiring and using skills presumed to be low level is itself quite complex (e.g., Wearne and Hiebert [1988]). In fact, complete mastery of basic skills probably requires an understanding of fundamental concepts sufficient to judge when it is appropriate to use a particular skill (e.g., Schoenfeld [1986]). This research base makes it possible to envision a new mathematics curriculum in which the learning of basic skills is integrated with thinking, problem solving, and reasoning.

Thinking skills

In recent years, reform has been called for in many school subjects, not just mathematics, to make the teaching of thinking a central part of the curriculum. The impetus for this movement comes in large part from two different bodies of research: (a) research that has revealed and analyzed poor performance by students on complex tasks and (b) research that has documented children's capabilities for complex thinking and reasoning on which current curricula are not building. Although interest in teaching thinking is not new, the current focus on teaching *all* students to think, not just a privileged elite, is especially promising. Several programs (e.g., Nickerson, Perkins, and Smith [1985]) have been developed in recent years to respond to the apparent need to upgrade students' reasoning and problem-solving skills (i.e., high-level thinking skills) in many disciplines.

Despite the widespread interest in teaching thinking, no simple, clear, universally accepted definition of what is meant by "high-level thinking" has emerged. Nevertheless, general agreement is found on certain hallmarks of high-level thinking. Resnick's (1987) review of research and scholarship on learning to think identified several of the features that

characterize high-level thinking. In particular, high-level thinking is non-algorithmic and complex; it often yields multiple solutions; and it involves nuanced judgment, uncertainty, and self-regulation of the thinking process. Considering the redecorating task in light of this description, we see that it presented Michael with an opportunity to engage in high-level thinking because (a) although some procedural knowledge was required, *no algorithm* was available that would solve the entire problem and no clear path of action had been laid out (e.g., what do you do after you find the areas?); (b) the reasoning about the task was *complex*, including many components (e.g., finding the areas, determining the number of gallons of paint needed, weighing cost against quality); (c) the problem had *multiple solutions* rather than a single

Open-ended problems stimulate thinking.

"right answer"; (d) *nuanced judgment* was required (e.g., stain-resistant carpet is probably the better choice even though it costs more money because it will wear better and require less maintenance); (e) the reasoning involved *uncertainty* (e.g., how many coats of paint will really be required to cover an existing darker color?); and (f) the solution process required *self-regulation* (e.g., no checklist of things to consider was available for determining the materials to purchase). Although the redecorating task might have been approached rather algorithmically by an experienced interior decorator, it served as an opportunity for complex quantitative thinking for Michael and his adult friend.

General versus specific approaches

Much attention has been given to the development of programs for teaching high-level thinking. *General approaches* to teaching thinking skills, such as the Productive Thinking Program (Covington 1985) and CoRT (de Bono 1985), focus instruction on helping students develop a variety of strategies for planning, managing, and monitoring their own cognitive activity. As Adams (1989) noted, the fundamental assumption underlying these general approaches is that a certain set of processes are common to all high-level thinking, regardless of the domain in which they will be applied. *Content-specific approaches*, in contrast, infuse thinking skills and strategies into the teaching of a particular subject area. In elementary school mathematics, the teaching of heuristic problem-solving strategies, such as drawing a diagram or restating the problem, can be part of a content-specific approach, and evidence suggests that students can benefit from such instruction. For example, Lee (1982) was able to teach fourth graders a set of heuristic strategies, and the students who received the instruction were more successful in using the strategies to solve a variety of mathematics problems than students who had not received the instruction. Putt (1979) found that fifth-grade students could benefit from instruction in heuristics, so that they were able to use many of the strategies effectively, they developed an appropriate vocabulary for discussing the strategies, and they were able to suggest many questions appropriate for understanding the problems they were asked to solve. Heuristics are not synonymous with high-level thinking skills, however, and are sometimes inappropriately presented to students as a memorable list of steps that must be followed.

Resnick (1987) suggests that although evidence shows that elements of high-level thinking can be taught, little evidence can be cited to support a particular program or approach. Perkins and Salomon (1989) argue that if our goal is to teach skills that can be generalized and transferred to other

domains, we need to give students instruction in the principles of both general and content-specific high-level thinking. They claim that domain-specific knowledge without general heuristics is inert and that general heuristics that are detached from a rich domain-specific knowledge base are weak. In the next section, we turn our attention to some ways to teach high-level thinking in elementary school mathematics.

Suggestions for Classroom Practice

Evidence suggests that children are capable of high-level thinking and that they often demonstrate this ability naturally in nonschool settings. Helping students to be more thoughtful about the mathematics they learn in school does not necessarily require nonroutine problems or special materials. Opportunities can be found in the topics commonly taught in elementary school. For example, any division computation exercise involving a remainder can be used to model and solve several different story problems. Therefore, any division exercise can serve as an instructional opportunity for rich thinking and discussion about the application of mathematics to real-world situations and the nature of mathematical models (Silver 1988). Moreover, routine computational procedures can in some ways be a source of high-level thinking and reasoning about mathematics (Lampert 1989). For example, having students explore alternative algorithms for standard operations offers an opportunity for a discussion of why a particular algorithm works and why it might be preferable to others. Such opportunities to emphasize high-level thinking are fairly easy to integrate with standard textbooks and instructional practice.

Problems with multiple methods of solution

Opportunities for students to think about mathematics are often associated with their talking about mathematics with each other and with their teacher. One tactic that some teachers have found effective to stimulate students' thinking and discussion is to

present problems that have multiple methods of solution. Consider, for example, the following problem that one teacher recently presented to her seventh-grade class:

A farmer puts his chickens into cages and finds that he has 2 cages left over if he puts 6 chickens in a cage, but he has 2 chickens left over if he puts 4 chickens in a cage. How many chickens and how many cages does the farmer have?

After a brief time in which the teacher presented the problem and discussed it with the class, the students were asked to solve the problem independently or in small groups, using any method they wished. During

Students talk about their approaches.

the solution period, the teacher circulated around the room, taking note of the various approaches being used by the students, asking clarifying questions, and giving other help to those who needed it. During her travels around the room, the teacher designated some of the students to present their solutions to the class. When the time for work on the solution of the problem was over, the designated students, who had written their solutions on large sheets of butcher paper, presented and explained their solutions to the entire class. The multiple methods—some involving clever counting, some based on a guess-and-test strategy, others with a geometric flavor, and even one that was fairly algebraic in nature—were displayed for subsequent summary and discussion, during which the similarities and differences, unique features, and other characteristics of the solutions were identified and examined by the teacher and her students.

Opportunities for students to create and discuss multiple solution methods for interesting mathematical problems

constitute invitations to engage in high-level thinking in mathematics class, and they represent important opportunities for teachers to learn about and enhance their students' mathematical thinking and reasoning. Although textbooks do not typically emphasize multiple solution procedures, many textbook problems could be used for this kind of activity.

Open-ended problems

Another technique that some teachers have used to foster opportunities for high-level thinking in mathematics classes is the posing of open-ended problems. Although mathematics textbooks almost always present problems that have a well-specified goal, interesting activities can result from modifying existing problems to make them more open ended. Silver and Adams (1987) have suggested a few ways to use open-ended problems in elementary school classes, and Brown and Walter (1983) have suggested many examples appropriate for older students. Consider the following two problems that illustrate the difference between a typical school mathematics problem and a more open-ended version:

Problem 1

John has 34 marbles, Bill has 27 marbles, and Mike has 23 marbles. How many marbles do they have together?

Problem 2

John has 34 marbles, Bill has 27 marbles, and Mike has 23 marbles. Write and solve as many problems as you can using this information.

Problem 1, which is a typical elementary school problem, is not likely to encourage high-level thinking if the students are simply expected to apply a particular algorithm they have learned. However, the open-ended nature of problem 2 invites students to consider alternatives, to analyze a simple situation and relate it to the mathematics they know, and to propose problems that are interesting and complex.

Teachers who have used such activities report that their students often

propose many interesting problems that are more challenging than the problems they are typically given to solve. For example, problem 2 would likely lead not only to the question posed in problem 1 and other typical questions, such as, How many more marbles than Bill does John have? It would also lead to more interesting and challenging questions, such as, How many more marbles would they need in order to have as many marbles as Sammy, who has 103 marbles? or How many marbles would Bill need to give Mike in order for them to have the same number of marbles? Moreover, a question like the following could lead to an interesting discussion of the reasonableness of problems and solutions: How many marbles would John need to give Mike in order for them to have the same number of marbles?

Situational problems

Many teachers have also found that it is possible to bring into the mathematics classroom problems like the decorating task with which Michael was helping his friend. For example, consider the following:

Rebecca has a pocketful of change. She would like to buy a soda, which costs \$0.55. How could she pay for the soda so that she would eliminate the most change from her pocket?

This applied situational problem has features of the classes of problems previously discussed. It is open with respect to interpretation. (Is Rebecca buying the soda from a machine? If so, even if she had fifty-five pennies, they would not be useful in this situation. But if Rebecca is at a store, fifty-five pennies is a valid solution.) The problem is also open with respect to solution. (If she is buying the soda from a machine, she might first look for eleven nickels in her pocket to eliminate a maximum number of coins. If she does not have eleven nickels, then using nine nickels and one dime might be her next attempt to solve the problem.) Furthermore, the problem is even open with respect to goal. (Should Rebecca use volume, weight, or number of coins in her pocket as the criterion for the "best"

solution?) Problems such as this one give students experience in using mathematics and offer opportunities for high-level thinking.

Conclusion

All the activities we have suggested could be used in classrooms by teachers to encourage the kind of high-level thinking described by Resnick (1987)—thinking that is complex, that is nonalgorithmic, and that involves some judgment and uncertainty. Using such activities will not only help students develop their ability to think at a high level but also help them see that such thinking is valued in the subject area of mathematics and in your classroom.

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QUASAR

Quantitative Understanding Amplifying Student Achievement and Reasoning

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The QUASAR project is designed to provide a national demonstration that it is both feasible and responsible to teach an enhanced mathematics program to middle school students attending schools in economically disadvantaged communities. The project will demonstrate that, if effort, imagination, and appropriate resources are devoted to the task, these students will learn a broader range of mathematical content, acquire a deeper and more meaningful understanding of mathematical ideas, and improve their ability to reason and solve appropriately complex problems. Beyond merely demonstrating that this can happen, however, the project will also carefully study various approaches to accomplishing the general goal, ascertain the conditions that appear to be necessary for success, derive important instructional principles to guide effective mathematics instruction for middle school students, devise new assessment tools to measure growth in high-level thinking, and describe and communicate the findings to interested educational and political audiences.

The best available wisdom from the mathematics education and cognitive science communities concerning the learning and teaching of mathematics will be utilized. Potential linkages to other educational reform movements, such as those dealing with school restructuring, teacher professionalism, the redistribution of administrative responsibility, and technology integration will also be explored as school sites are selected and programs are implemented.

Rationale

Schools are currently under attack for failing to educate America's youth. Many believe that our schools are not empowering students with the reasoning, thinking, and problem-solving skills that they will need for intelligent citizenry in the future. Educational critique is particularly sharp about the learning and teaching of mathematics. National studies show how little mathematics our students know, and international studies demonstrate how poorly our students perform when compared with their counterparts in most other countries. Not only is student performance uniformly poor, but the extremely low rate of entry into fields requiring a mathematics background is also quite alarming.

Among disadvantaged students, the situation is even worse. This population of students is ethnically diverse, although it contains a disproportionate number of African American and Hispanic students; it is also geographically dispersed, numbering in its ranks urban, suburban, and rural youth from all regions of the country. The combination of a narrow curricular focus on computational skills and the "drill-to-kill" remediation cycle in which these students are locked appears to be systematically denying them access to careers that require background and training in mathematics and science. Moreover, these students are not being given education in and experience with the kinds of high-level thinking and reasoning skills that the future demands. To break this cycle, we believe that efforts must be made during the middle school years, the time in which personal and academic trajectories are set. If the developmental opportunities of this period are missed – if students are relegated to the remedial track – many will never recover, and society may have to invest substantial time and resources later in basic training and retraining.

The academic deficiencies mentioned above do not inhere in students but are highly correlated with the nature of teaching in most American schools. Recognizing this situation, the mathematics education community urges fundamental changes in the goals of mathematics education, the assessment of these new goals, and the instructional methods that should be used to achieve them. Given the accumulated evidence of the severity of the problems, the general agreement within the cognitive science and mathematics education communities that thinking skills should be infused in all areas of the curriculum, and the generally supportive climate for educational reform, the time is right to launch a major national project aimed at fostering high-level thinking and reasoning skills in students who attend schools in disadvantaged communities.

Another factor that makes this an especially propitious time to start a demonstration project is the availability of an extensive research base (developed by the mathematics education, cognitive science and other research communities) on children's mathematical learning and performance. Beyond the findings of children's lack of success, other lines of research have provided rich descriptions of children's intuitive mathematical understandings and their capabilities for complex performance. We also have a much deeper understanding of the complexities associated with learning apparently simple mathematical ideas, such as fractions or decimals. These findings form the basis for powerful instructional suggestions and approaches, capable of being embedded in materials and methods, to improve mathematics learning and teaching.

Operational Plan

The Learning Research and Development Center (LRDC) at the University of Pittsburgh will serve as the lead institution for this project. The project staff will select the operational sites, monitor and document site-based activities, develop new approaches to student assessment, offer guidance or support as needed, and evaluate project outcomes. The LRDC-based staff will be supported in their work by site-based staff, who will assist with documentation, assessment, and evaluation activities; and by designated subcontractors, who will assist with the development of the tools needed to assess student outcomes.

The project will also draw on the technical knowledge and advice of a group of experts serving on the Advisory Panel and several task forces to ensure that the project will make substantial impact on the field of education, to provide general direction and specific advice in each of the areas of concern to the project, and to help integrate QUASAR with other related national educational reform and improvement efforts. In addition, the project will benefit from the insights and broad perspectives provided by members of the Visiting Committee, whose membership includes leaders from business, labor, government, education, and community affairs.

The project is composed of several key operational components.

Initial Development Sites. The initial development sites will consist of partnerships involving a middle school or set of middle schools located in an economically disadvantaged area and a set of additional human resources that are geographically proximate to the site. The initial development sites will serve as "hothouse" environments for partners – site teachers, university researchers, teacher educators, and other personnel – who will collaborate to adapt innovations and conduct instructional experiments. It is intended that each site will "grow" a distinctive approach to high-level thinking and reasoning in mathematics, although the approaches need not be mutually exclusive.

In selecting sites, care will also be taken to insure both a reasonable geographic and ethnic distribution and some diversity of instructional approaches. Examples of the latter might include the adaptation of text materials and instructional approaches to reflect an emphasis on metacognitive considerations (e.g., underlying structures of the subject being studied, emphasis on self-regulation), the use of particular innovative curriculum materials or pedagogical approaches (e.g., cooperative group problem solving) that provide enhanced opportunities for substantive engagement with interesting and intellectually challenging mathematical tasks, or staff development approaches aimed at sensitizing teachers to multicultural issues related to learning and achievement (e.g., the misuse of ethnicity as an index for presumed cognitive deficiencies).

Initial development sites will be chosen according to the following criteria:

- The school is located in an economically disadvantaged neighborhood.
- The school is a middle school that starts in grade 5 or 6.
- The initial development site is a well-functioning school; that is, it can support innovation and academic achievement. Examination of strengths and indicators of probable success will include measures of overall support for academic work such as high expectations of students and teachers; high degrees of parental support; a stable and talented teaching staff; administrative support for innovation and excellence on the school and/or district level; or a cooperative school climate.
- The initial development site has a variety of existing and potential partners: university researchers, and teacher educators, parents, and members of the larger community, including business and industry. These partners will work collaboratively to design and implement a successful program of improved mathematics instruction utilizing the complementary skills of the site teachers, resource partners, and project staff. With some support from QUASAR, the partners will provide resources and support to increase student achievement.
- The school is ready to begin a program of enhanced mathematics instruction for all students in a specified grade level.

Adaptation Sites. Following several years of testing programs at the initial development sites, additional school sites will be recruited to join the project. These sites will mold the successful approaches of the initial development sites to somewhat more typical educational conditions. That is, the adaptation sites will test the applicability of programs developed in the first set of sites to schools that may not have the resources or community support of the initial development sites.

Documentation. Documentation of the processes and activities at the school sites will be comprised of two principal components. First, information will be collected about the sites, about project activities at the sites, and about the relationships between school site participants and university partners, parents, other schools, or related educational communities. The second component will focus on teachers and classrooms, especially the ways in which teachers incorporate the ideas, methods, and materials of the project into their classrooms and blend them with their own wisdom accumulated from practice. The data obtained from these two components will be combined with information about student outcomes to build hypotheses about project-based activities that appear to affect student performance.

Student Assessment. The standardized, multiple-choice tests widely used in the United States to measure students' mathematical knowledge and understanding are not likely to fully assess the range of outcomes desired in this project. New tasks will be needed to measure students' process and knowledge of a broader range of mathematical content than simple paper-and-pencil algorithms, their understanding of mathematical concepts, and their ability to use high-level thinking and reasoning to solve complex problems. Thus the design and construction of appropriate assessment tools and techniques to measure these outcomes will be a major undertaking that is likely to have an impact well beyond this project.

Project Evaluation. Evaluation will consist of explanatory observational studies that identify important factors associated with differential student achievement, differential instructional approaches, and the relationship between them. The evaluation will identify both a set of "enabling conditions" that contribute to the successful implementation of programs and a set of explanatory variables that indicate determinants of program success and project impact. The design of the evaluation plan will be guided by a set of desired project outcomes that will require diverse data sources and design considerations.

Dissemination. Each of the major activities – instructional programs, documentation, assessment, and evaluation – will produce information that will be suitable for dissemination to interested audiences. Dissemination will be directed primarily to four major educational groups: practitioners, specialists in staff or materials development, researchers, and policy makers.

Anticipated Impact

This project is an important, practical school demonstration project, but it is also much more. It is a challenge to the premises of current middle school mathematics education and compensatory education. It is also a sophisticated research study of educational change and improvement, in which a major effort will be made not only to describe effective instructional programs in ways that will allow their adaptation to other schools in low-income areas but also to help determine the critical features of successful instructional approaches as they are manifested at the classroom, school, and community levels.

The major impact of the project will be felt at the middle schools involved in QUASAR; i.e., the initial development sites and the adaptation sites. In these schools, we expect that students will broaden the range of their knowledge, amplify their ability to reason and deal with complex quantitative problems, and acquire a deeper, more meaningful understanding of mathematical concepts.

The impact beyond those sites will be the legacy of richly described and thoroughly tested instructional models and principles that can form the foundation for rethinking remedial or compensatory education programs in mathematics. QUASAR will also stimulate the redesign of middle school curricula so that appropriately high goals and content are set and instructional approaches provide support and guidance for children and their teachers to achieve these goals. Moreover, the assessment tasks developed in the project will also have wide applicability as prototypes of the new assessments that the "thinking curriculum" will demand.

In general, the QUASAR project will provide a forum for educational practitioners, teacher educators, curriculum developers, researchers, and others to argue the merits of various educational goals and strategies. The project will stimulate discussion, exploration, and modification of the ideas tested over the several-year time period of the project. And, finally, its impact will be extended in subsequent research, development, and school improvement efforts.